INDEX

Volume 221

Transactions of the Metallurgical Society of AIME

A

Aaronson, H. I., and Toney, S.: *Effects of Grain Boundary Structure on Precipitate Morphology in an Fe-1.55 Pct Si Alloy.* Oct. 909
Abeles, B., *et al.*: *Thermal Diffusivity of Armco Iron.* Feb. 25
Abrahams, M. S., and Neighbor, G. W.: *Determination of the Glide Elements and Recrystallization in InSb.* Oct. 947
Abrahamson, E. P., II: *Role of Dilute Binary Transition Element Additions on the Recrystallization of Columbium.* Dec. 1196
Role of Dilute Binary Transition Element Additions on the Recrystallization of Vanadium. Dec. 1193
Role of Dilute Binary Transition Elements on the Recrystallization of Zirconium. Dec. 1199
Acceleration of Deformation by Concurrent Phase Change. Aug. 802
Acid Bessemer Oxygen-Steam Process. June 536
Activities in Dilute Liquid Solution Fe-Si-O. Dec. 1277
Activities of Oxides in CaO-FeO-Fe_2O_3 Melts. Dec. 1090
Activity of SiO_2 in Slags. Dec. 1272
Adair, A. M,, *et al.*: *Observations on the Ductility and Fracture of Recrystallized Chromium.* Apr. 409
Adkins, E. F., and Douglass, R. W.: *Study of the Spectral Emissivities and Melting Temperatures of Osmium and Ruthenium.* Apr. 248
Albrecht, W. M., *et al.*: *Reaction of Pure Tantalum with Air, Nitrogen, and Oxygen.* Feb. 110
Albright, D. L., and Kraft, R. W.: *Microstructure of Unidirectionally Solidified Al-$CuAl_2$ Eutectic.* Feb. 95
Alcock, C. B., and Cheng, L. L.: *Thermodynamic Study of Dilute Solutions of Sulfur in Liquid Tin and Lead.* Apr. 295
Aluminum:
copper effect on corrosion in HCl. Apr. 250
Cu on activation Al crystals. June .. 458
effect, surface active agents, crystals. Oct. 989
effect, surface removal. Aug. 780
glide and boundary, polycrystalline. Apr. 244
microstructure, Al-$CuAl_2$ eutectic. Feb. 95
orientation relationships by twinning. Aug. 758
self-diffusion, CaO-SiO_2-Al_2O_3 melts. Feb. 56
strengthening of Ag. Oct. 967
structure, grown from melt. Aug. 737
temperature effect, creep, polycrystalline. Apr. 229
tensile properties, silver base. Feb. 103
yield points in alpha Cu-Al. Dec. 1178
Analysis of Powder Compaction Phenomena. Oct. 1001
Andrew, K. F., and Gulbransen, E. A.: *Vapor Pressure Studies on Iron and Chromium and Several Alloys of Iron, Chromium, and Aluminum.* Dec. 1247
Annealing Twins and Coincidence Site Boundaries in Zone-Refined Aluminum. Aug. 758
Anomaly in the Rate of Strain Hardening of Zinc Single Crystals. Feb. 204
Ansell, G. S., *et al.*: *Technique for the Preparation of Thin Films of Two-Phase Alloys Suitable for Use in Transmission Electron Microscopy.* Apr. 406
Temperature Dependence of the Yielding Behavior of SAP-Type Dispersion Strengthened Alloys. Aug. 892
Ansell, G. S., and Arnold, P. E.: *Internal Friction Behavior of an Aluminum-Aluminum Oxide SAP-Type Alloy.* Feb. 206
Ansell, G. S., and Lenel, L. V.: *Creep of a Recrystallized Aluminum SAP-Type Alloy.* June 452
Appleton, A. S., *et al.*: *Effects of Explosive Shock Waves on a Gold-Silver Alloy.* Feb. 90
Arnold, P. E., and Ansell, G. S.: *Internal Friction Behavior of an Aluminum-Aluminum Oxide SAP-Type Alloy.* Feb. 206
Arora, O. P., *et al.*: *Effect of Copper on the Corrosion of High-Purity Aluminum in Hydrochloric Acid.* Apr. 250
Arsenic:
effect on surface tension of lead. Apr. 266
Artifacts in Extraction Replicas. Dec. 1275
Aul, F. W., *et al.*: *Recrystallization of Dilute Alpha Iron-Molybdenum Solid Solutions.* Oct. 982
Aul, F. W., and Glenn, R. C.: *Artifacts in Extraction Replicas.* Dec. 1275
Aust, K. T.: *Annealing Twins and Coincidence Site Boundaries in Zone-Refined Aluminum.* Aug. 758
Aust, K. T., and Rutter, J. W.: *Production of Controlled Orientation Bicrystals for Grain Boundary Migration Studies.* June 641
Austenite Solidus and Revised Iron-Carbon Diagram. Apr. 323
Discussion. Aug. 888
Austenitic alloys:
precipitation, intermetallic compounds. Feb. 28

B

Backofen, W. A., and de Kazinczy, F.: *Effect of Grain Size on Brittle Fracture in Steel.* June 640
Ball bearings:
absorption of hydrogen from hydrocarbon lubricant. Oct. 1082
Ball-milling:
production of metal powders. Dec. .. 1105
Barloga, A. M., *et al.*: *Iron-Carbon-Sulfur System from 1149° to 1427°C.* Feb. 173
Basic oxygen furnace:
end-point temperature control. Feb. . 118
Beamish, F. E., *et al.*: *Copper, Nickel, and Iron Alloys for the Quantitative Recovery of the Platinum Metals in Ores and Concentrates.* Feb. 145
Beattie, H. J., and Gould, G. C.: *Hardening Mechanism in Nitralloy-N Steel.* Aug. 893
Beattie, H. J., and Hagel, W. C.: *Intragranular Precipitation of Intermetallic Compounds in Complex Austenitic Alloys.* Feb. 28
Bechtoldt, C. J., and Vacher, H. C.: *Redetermination of the Chromium and Nickel Solvuses in the Chromium-Nickel System.* Feb. 14
Beck, P. A., and Parthasarathi, M. N.: *Interpretation of the Rolling Texture of Copper.* June 461
Oriented Growth Mechanism of the Formation of Recrystallization Textures in Aluminum. Aug. 831
Beer, S. Z.: *Solubility of Nitrogen in Molten Iron Manganese Alloys.* Feb. 2
Beers, D. S., *et al.*: *Thermal Diffusivity of Armco Iron.* Feb. 25
Benz, M. G., and Elliott, J. F.: *Austenite Solidus and Revised Iron-Carbon Diagram.* Apr. 323
Discussion. Aug. 888
Bergholm, Arne: *Chlorination of Rutile.* Dec. 1121
Beryllium:
orientation. Aug. 890
tensile properties, effect of Cu, Ni, Fe, Cr. Apr. 364
zone purification. Aug. 824
Bever, M. B., *et al.*: *Effects of Explosive Shock Waves on a Gold-Silver Alloy.* Feb. 90
Heats of Solution in Liquid Tin of the Group 111 Elements Aluminum. Gallium, Indium, and Thallium. Aug. 683
Bharucha, V., *et al.*: *Transformation Kinetics in High-Purity Iron and Some Iron Binary Alloys.* June ... 498
Bieber, C. G., and Decker, R. F.: *Melting of Malleable Nickel and Nickel Alloys.* June 629
Bismuth:
density anomalies, Bi_2Te_3-Sb_2Te_3. June 647
into grain boundaries, nickel alloy. June 492
redox reactions in liquid. Feb. 192
solubility of uranium. Feb. 83
Blast furnace:
SiO_2 activity in slags. Dec. 1272
thermochemical model. June 485
Bock, K. R., *et al.*: *Iron-Carbon-Sulfur System from 1149° to 1427°C.* Feb. 173
Boettner, R. C., and Robertson, W. D.: *Study of the Growth of Voids in Copper During the Creep Process by Measurement of the Accompanying Change in Density.* June 613
Borg, R. J.: *Free Energy of Formation of CdSb.* Apr. 242
Some Thermodynamic Properties of the Cadmium-Copper System. 527

Borough, J. W.: *Effect of Zinc on the Conductivity of Copper.* Dec. 1274
Bosch, R. A., *et al.: Temperature Dependence of the Yielding Behavior of SAP-Type Dispersion Strengthened Alloys.* Aug. 892
Brass:
diffusion in gamma. June 561
Brittain, J. O., *et al.: Influence of Alloying Elements on the Internal Friction of Cold Worked and Quenched Martensitic Iron and Steel.* Dec. 1158
Brophy, J. H., *et al.: Sintering and Strength of Coated and Co-Reduced Nickel Tungsten Powder.* Dec. 1225
Ta-W-Re System. Dec. 1137
Brotzen, F. R., and Taranto, J.: *Stacking Faults in Platinum.* June. 645
Brown, Norman: *Dependence of Wire Texture in Fcc Metals on Stacking Fault Energy.* Apr. 236
Buehler, E., and Kunzler, J. E.: *Observations Concerning Zone Refining and Thermal Treatment of Molybdenum from Low Temperature Resistance Measurements.* Oct. 957
Butler, J. F., *et al.: Thermodynamic Activities in the Fe-Mn-C System.* June. 479

C

Cadmium:
free energy, formation of CdSb. Apr. . 242
prismatic plastic glide. June. 456
thermodynamic properties, Cd-Cu system. June 527
Cadmium-Uranium Phase Diagram. Aug. 789
Cadoff, I., *et al.: Note on the Pb-Se Phase Diagram.* Dec. 1269
Cahn, J. W., and Hilliard, J. E.: *Evaluation of Procedures in Quantitative Metallography for Volume-Fraction Analysis.* Apr. 344
Calcium:
deoxidation of thorium. Oct. 924
Calculation of Activities in Binary Systems Having Miscibility Gaps. Apr. 377
Carbon:
solubility in tantalum. Oct. 937
Carlson, O. N., and Eustice, A. L.: *Effect of Hydrogen on the Tensile Properties of Iodide Vanadium.* Apr. 238
Carlson, R. G., and Westermann, F. E.: *Hot Pressing of Lead Spheres.* June 649
Carnahan, R. D., *et al.: Effect of Grain Size of Polycrystalline Silver Chloride at Various Temperatures.* Feb. 45
Catastrophic Oxidation of Stainless Steel in Presence of Lead Oxide. Feb. 63
Celmer, P. R., and Weisberg, L. R.: *Dependence of Segregation of Impurities on the Crystallinity of Gallium.* Aug. 889
Chandrasekhar, B. S., and Veal, B. W.: *Crystallographic Angles in Tetragonal Crystals: β-Tin and Indium.* Feb. 202
Cheney, R. F., *et al.: Penetration of Liquid Bismuth into the Grain Boundaries of a Nickel Alloy.* June 492
Cheng, L. L., and Alcock, C. B.: *Thermodynamic Study of Dilute Solutions of Sulfur in Liquid Tin and Lead.* Apr. 295
Chiotti, P., and Gill, K. J.: *Phase Diagram and Thermodynamic Properties of the Thorium-Zinc System.* June 567
Chipman, John: *Activity of SiO_2 in Slags.* Dec. 1272
Chipman, John, and Elle, Michel: *Columbium-Oxygen Equilibrium in Liquid Iron.* Aug. 701
Chipman, John, and Pillay, T. C. M.: *Activities in Dilute Liquid Solution Fe-Si-O.* Dec. 1277
Chlorination of Rutile. Dec. 1121
Chromium:
ductility, fracture, recrystallized. Apr. 409
recovery and recrystallization. Apr. 395
redetermination of solvus. Feb. 14
solubility in liquid tin. Apr. 271
thermodynamic properties, Cr_3C_2. Apr. 275
Clark, J. B.: *Phase Relationships in the Magnesium-Rich Region of the 335°C Tetrahedron of the Mg-Al-Ca-Zn Phase Diagram.* June 643
Solid Constitution in the Magnesium-Rich Region of the Mg-Ca-Zn Phase Diagram. June 644
Clark, J. B., and Yue, A. S.: *Determination of the Eutectic Composition by the Zone-Melting Method.* Apr. 383
Class, W. H., *et al.: Embrittlement of NaCl by Surface Compound Formation.* Aug. 769
Cobalt:
deformation studies, crystals. Dec. . 1263
precipitation, Co-rich, Co-Ti Alloys. Aug. 747
reduction, sulfate solutions. Dec. .. 1141
solubility in liquid lead. Apr. 271
thermal decomposition, cobalt sulfate. June 591
Cody, G. D., *et al.: Thermal Diffusivity of Armco Iron.* Feb. 25
Cohen, J. B., *et al.: Heats of Solution in Liquid Tin of the Group III Elements Aluminum, Gallium, Indium, and Thallium.* Aug. 683
Coincidence Sites. Feb. 203
Columbium:
constitution diagram, Cb-Re. Oct. .. 1009
equilibrium, liquid iron. Aug. 701
iron-base alloys strengthening. Aug. 676
mechanical properties. Feb. 19
oxidation, CbO. Apr. 352
oxidation, 500° to 1200°C. Apr. 285
oxidation kinetics. Apr. 218
thermodynamic considerations. Aug. 866
transition element additions on recrystallization. Dec. 1196
Columbium-Oxygen Equilibrium in Liquid Iron. Aug. 701
Compaction:
density relationships. Aug. 671
Comparison of Dispersion Hardening in Four Silver-Base Alloys of Equivalent Composition. Apr. 407
Constitution Diagram Niobium (Columbium)-Rhenium. Oct. 1009
Control of Oxygen in Copper During Refining. Dec. 1264
Copper, Nickel, and Iron Alloys for the Quantitative Recovery of the Platinum Metals in Ores and Concentrates. Feb. 145
Control of Annealing Texture by Precipitation in Cold-Rolled Iron. Aug. . 752
Copper:
aging, supersaturated alpha phase, Cu-Si alloy. Oct. 1074
alloys with P, As, Sb. Aug. 720
change in density. June 613
control of oxygen, refining. Dec. ... 1264
deformation effects, Cu_3Au. Oct. ... 1049
development, Cu-Ti-Sn, Cu-Ti-Sn-Cr. June 596
dispersion strengthening, CuAl system. Apr. 371
effect on corrosion, Al in HCl. Apr. 250
effect on energies creep Al crystals. June 458
fatigue softening. Dec. 1095
fracture behavior, mercury-coated. Apr. 261
measurement, self-diffusion. Oct. .. 1039
properties, age hardening Cu-Ni-Si. June 503
rolling texture. June 461
self-diffusion in molten. Feb. 72
solution rate in lead. Apr. 279
steady state creep, $CuAu_3$-alloy. Dec. 1280
strengthening by oxidation. Feb. ... 164
thermodynamic properties, Cd-Cu system. June 527
yield points in alpha Cu-Al. Dec. .. 1178
zinc, on conductivity. Dec. 1274
Corrections: Vol. 218, p. 1125
Vol. 221, pp. 295, 527
June 652
Craig, G. B., and Rezek, J.: *Effect of Striation Substructure on the Critical Resolved Shear Stress of Zinc Single Crystals.* Aug. 715
Creep and Creep-Rupture Relationships in an Austenitic Stainless Steel. Apr. 310
Creep of a Recrystallized Aluminum SAP-Type Alloy. June 452
Crossley, F. A., *et al.: Orientation of Cast Beryllium.* Aug. 890
Viscous Shear as an Agent for Grain Refinement in Cast Metal. Apr. 419
Crystallographic Angles in Tetragonal Crystals: β-Tin and Indium. Feb. 202
Crystallography:
angles, β-tin and indium. Feb. 202
bicrystals, grain boundary migration. June 641
bismuth into Ni alloy. June 492
change of density, Cu. June 613
coincidence sites. Feb. 203
cropping effects. Dec. 1271
Cu additions, Al crystals. June 458
deformation, fracture, lithium-fluoride crystals. Feb. 35
delay time, Al, Zn, Fe. June 474
determining orientation relationships. Aug. 704
effect, surface-active agents, Al crystals. Oct. 989
effect, Cu on creep Al crystals. June 458
effects, twinning in alpha iron. Aug. 711
Fe and Fe binary alloys. June 498
free volume theory of liquids. June . 422
glide, grain boundary, polycrystalline Al. Apr. 244
grain size effect, deformation, silver chloride. Feb. 45
hardness, single crystal, polycrystalline Mg. June 554
impurity segregation. Aug. 889
intersection mechanism, Al crystals. Dec. 1206
metal crystal orientation by polarizing microscope. Feb. 199
nucleation, solid from liquid lead. June 607
oxide films on single crystal, Fe. Apr. 257
prismatic glide, Cd crystals. June .. 456
prismatic slip, magnesium. Dec. ... 1148
strengthening of Ag by Al. Oct. 967
temperature effect, Ag-Al. Aug. 858
temperature effect, polycrystalline Al. Apr. 229
tensile properties, silver-based Al alloy. Feb. 103
texture formation, Si-Fe. Feb. 130
thin films, martensite formation. Dec. 1270
Ti-Cu-Zr, structure Ti_2Cu. Apr. 320

twinning, zone-refined tungsten. Aug. 741
XGa_2 compounds, structure. Feb. ... 201
yield point, glide, silver. Apr. 305
Cube Texture in Ultra-Thin Molybdenum Permalloy Tape. Feb. 50
Cyclic loading:
effect on MgO crystals. Oct. 1086

D

Dahl, J. M., *et al.: Sulfide Inclusions in Steel.* Apr. 220
Danielsson, A., *et al.: Spectrochemical Slag Analysis with the Tape Technique.* Aug. 826
Darken, L. S.: *Role of Chemistry in Metallurgical Research.* Aug. 654
Darken, L. S., and Turkdogan, E. T.: *Sulfur Equilibria between Gases and Calcium Ferrite Melts.* June . 464
Darling, A. S.: *Permeability and Diffusion of Hydrogen through Palladium.* Discussion. Aug. 873
Davies, P. W., and Wilshire, B.: *Effect of Grain Boundary Migration on Creep Ductility.* Dec. 1265
Davies, R. G.: *Steady State Creep in a $CuAu_3$ Alloy.* Dec. 1280
Davis, K. G., and Teghtsoonian, E.: *Growth of Cobalt Crystals for Deformation Studies.* Dec. 1263
Davis, R. S., and Doherty, P. E.: *Observations of the Structure of Aluminum Specimens Grown from the Melt.* Aug. 737
Dean, R. L., *et al.: The System Titanium-Zirconium-Oxygen.* Dec. 1162
Decker, R. F., and Bieber, C. G.: *Melting of Malleable Nickel and Nickel Alloys.* June 629
Deformation:
acceleration by phase change. Aug.. 802
cobalt crystals. Dec. 1263
fiber texture, aluminum rods. Aug. . 812
fracturing, mercury-coated Zn and Cu. Apr. 261
identification, Mo-35 pct Re. June . 650
in Cu-Subgroup V-B alloys. Aug. ... 720
intersection mechanism, Al single crystals. Dec. 1206
lithium-fluoride single crystals. Feb. 35
properties, Cu alloy. June 503
surface removal, Al crystals. Aug. .. 780
DeHoff, R. T., and Rhines, F. N.: *Determination of Number of Particles Per Unit Volume From Measurements Made on Random Plane Sections; General Cylinder and Ellipsoid.* Oct. 975
de Kazinczy, F., and Backofen, W. A.: *Effect of Grain Size on Brittle Fracture in Steel.* June 640
Delay Time in Single Crystals of Aluminum, Zinc, and Iron. June 474
Delve, F. D., *et al.: Thermochemical Model of the Blast Furnace.* June 485
Demer, L. J., and Kramer, I. R.: *Effect of Surface Removal on the Plastic Behavior of Aluminum Single Crystals.* Aug. 780
de Morton, M. E.: *Recovery and Recrystallization in 99.98 Pct Cr.* Apr. . 395
Density Anomalies in the Bi_2Te_3-Sb_2Te_3 System. June 647
Density of Liquid Iron Silicates. Aug. 807
Density of Liquid Plutonium Metal. Oct. 1017
Density-Pressure Relationships in Powder Compaction. Aug. 671
Dependence of Segregation of Impurities on the Crystallinity of Gallium. Aug. 889
Dependence of Wire Texture in Fcc Metals on Stacking Fault Energy. Apr. 236
Deposition:
evaluation by heat- and mass-transfer. Feb. 9
in filament bundles. Oct. 927
Derge, G., *et al.: Density of Liquid Iron Silicates.* Aug. 807
Self-Diffusion of Aluminum in CaO-SiO_2-Al_2O_3 Melts. Feb. 56
Derivation of Phase Diagram for the Silicon-Oxygen-Carbon System. Oct. 898
Deruyttere, A., *et al.: Anomaly in the Rate of Strain Hardening of Zinc Single Crystals.* Feb. 204
Determination of the Eutectic Composition by the Zone-Melting Method. Apr. 383
Determination of the Glide Elements and Recrystallization in InSb. Oct. 947
Determination of Interstitial Solid-Solubility Limit in Tantalum and Identification of the Precipitate Phases. Oct. 937
Determination of Number of Particles Per Unit Volume from Measurements Made on Random Plane Sections: General Cylinder and Ellipsoid. Oct. 975
Development of Copper Base High Strength-Medium Conductivity Alloys Cu-Ti-Sn and Cu-Ti-Sn-Cr. June 596
Dieter, G. E., *et al.: Effects of Explosive Shock Waves on a Gold-Silver Alloy.* Feb. 90
Diffusion:
Ag in AgMg. Oct. 951
Al in CaO-SiO_2-Al_2O_3 melts. Feb. .. 56
effect of strain in metals. Dec. 1174
gamma brass. June 561
hydrogen in Alpha-Delta Zircaloy-2. Aug. 819
hydrostatic pressure, in lead. Aug. . 761
Diffusion in Gamma Brass. June 561
Diffusivity:
thermal, Armco iron. Feb. 25
Dilatometric Investigation of Vacuum-Melted Zircaloy-2. June 567
Dispersion-Hardening in Binary Titanium-Copper Alloys. Discussion. Aug. 875
Dispersion Strengthening in the Copper-Alumina System. Apr. 371
Dispersion Strengthening of Copper by Internal Oxidation. Feb. 164
Doane, D. V., *et al.: Molybdenum by Direct Thermal Dissociation of Molybdenum Disulfide.* Apr. 356
Dodd, R. A., and Gokcen, N. A.: *Solubility of Nitrogen in Liquid-Iron Manganese Alloys.* Apr. 233
Dodd, R. A., and Hein, E.: *Softening of Strain-Hardened Polycrystalline Copper during Reversed Stress Fatigue and Tensile Fatigue.* Dec. 1095
Doherty, P. E., and Davis, R. S.: *Observations of the Structure of Aluminum Specimens Grown from the Melt.* Aug. 737
Domis, W. F., *et al.: Creep and Creep-Rupture Relationships in an Austenitic Stainless Steel.* Apr. 310
Donachie, M. J., Jr., and Norton, J. T.: *Lattice Strains and X-Ray Stress Measurement.* Oct. 962
Donaldson, A. D., *et al.: Effect of Copper, Nickel, Iron, and Chromium on the Tensile Properties of Preferentially Oriented Beryllium Sheet.* Apr. 364
Donovan, J. A., *et al.: Quasibinary System PbTe-Bi.* Dec. 1266
Dorn, J. E., *et al.: Effect of Copper Additions on the Activation Energies for Creep of Aluminum Single Crystals.* June 458
Effect of Temperature on Yielding in Single Crystals of the Hexagonal Ag-Al Intermetallic Phase. Aug. . 858
On the Intersection Mechanism of Plastic Deformation in Aluminum Single Crystals. Dec. 1206
On the Thermally Activated Mechanism of Prismatic Slip in Magnesium Single Crystals. Dec. 1148
Dorn, J. E., and Jaffe, N.: *Effect of Temperature on the Creep of Polycrystalline Aluminum by the Cross-Slip Mechanism.* Apr. 229
Douglass, R. W., *et al.: Notch Sensitivity of Ti-5Al-2.5Sn, Ti-6Al-4V, and Ti-2Fe-2Cr-2Mo Titanium Alloys.* Dec. 1235
Douglass, R. W., and Adkins, E. F.: *Study of the Spectral Emissivities and Melting Temperatures of Osmium and Ruthenium.* Apr. 248
Downey, J. W., and Nevitt, M. V.: *Zirconium-Rich Corners of the Ternary Systems Zr-Co-O and Zr-Ni-O.* Oct. 1014
Dryden, C. E., *et al.: Metal Deposition Coefficients in Filament Bundles.* Oct. 927
Dryden, C. E., *et al.: Use of Heat- and Mass-Transfer Model Studies in the Evaluation of the Rates of Deposition of Metals in Complex Systems.* Feb. 9
Dunn, C. G.: *Study on the Texture Formation in Rolled and Annealed Crystals of Silicon Iron.* Discussion. Aug. 878
Dunn, C. G., and Walter, J. L.: *On Secondary Recrystallization in High-Purity Alpha Iron.* Apr. 413
Dynamic Effects During Twinning in Alpha Iron. Aug. 711

E

Easha, Joseph, Jr., and Harris, W. F.: *Control of Oxygen in Copper During Refining.* Dec. 1264
Easy Glide and Grain Boundary Effects in Polycrystalline Aluminum. Apr. 244
Effect of Arsenic and Tellurium on the Surface Tension of Lead. Apr. ... 266
Effect of Copper Additions on the Activation Energies for Creep of Aluminum Single Crystals. June .. 458
Effect of Copper, Nickel, Iron, and Chromium on the Tensile Properties of Preferentially Oriented Beryllium Sheet. Apr. 364
Effect of Copper on the Corrosion of High-Purity Aluminum in Hydrochloric Acid. Apr. 250
Effect of Grain Boundary Migration on Creep Ductility. Dec. 1265
Effect of Grain Size on Brittle Fracture in Steel. June 640
Effect of Grain Size on the Deformation of Polycrystalline Silver Chloride at Various Temperatures. Feb. ... 45
Effect of Heat Treatment on the Structure, Mechanical Properties, and Corrosion Resistance of Heavy Forged Sections of Zircaloy-2. Dec. 1129
Effect of Hydrogen on the Tensile Properties of Iodide Vanadium. Apr. 238
Effect of Hydrostatic Pressure On Self-Diffusion in Lead. Aug. 761

Effect of Initial Orientation on the Fiber Texture of Aluminum Rods. Aug. 812
Effect of Nickel on the Chromium and Carbon Relationship in Stainless Steel Refining. Apr. 416
Effect of Orientation on the Recrystallization Kinetics of Cold-Rolled Single Crystals. Apr. 336
Effect of Plastic Deformation on the Electrical Resistivity of Composite Silver Alumina Crystals. Feb. 60
Effect of Quenching on the Grain Boundary Relaxation in Solid Solution. Feb. 108
Effect of Strain on Diffusion in Metals. Dec. 1174
Effect of Striation Substructure on the Critical Resolved Shear Stress of Zinc Single Crystals. Aug. 715
Effect of Structure and Purity on the Mechanical Properties of Columbium. Feb. 19
Effect of Surface-Active Agents on Mechanical Behavior of Aluminum Single Crystals. Oct. 989
Effect of Surface Removal on the Plastic Behavior of Aluminum Single Crystals. Aug. 780
Effect of Temperature on the Creep of Polycrystalline Aluminum by the Cross-Slip Mechanism. Apr. 229
Effect of Temperature on Yielding in Single Crystals of the Hexagonal Ag-Al Intermetallic Phase. Aug... 858
Effect of Zinc on the Conductivity of Copper. Dec. 1274
Effects of Alpha-Soluble Additions (Aluminum, Carbon, Oxygen) on the Structure and Properties of Titanium-Molybdenum Alloys. Dec. ... 1110
Effects of Explosive Shock Waves on a Gold-Silver Alloy. Feb. 90
Effects of Grain Boundary Structure on Precipitate Morphology in an Fe-1.55 Pct Si Alloy. Oct. 909
Appendix. Oct. 916
Effects on Impurity Content of Cropping Directionally Frozen Ingots. Dec. 1271
Effects of Interstitial Solute Atoms on the Fatigue Limit Behavior of Titanium. Oct. 918
Eichen, E., *et al.: Technique for the Preparation of Thin Films of Two-Phase Alloys Suitable for Use in Transmission Electron Microscopy.* Apr. 406
Elle, Michel, and Chipman, John: *Columbium-Oxygen Equilibrium in Liquid Iron.* Aug. 701
Elliott, J. F.: *End-Point Temperature Control of the Basic Oxygen Furnace.* Discussion. Aug. 887
Elliott, J. F., and Benz, M. G.: *Austenite Solidus and Revised Iron-Carbon Diagram.* Apr. 323
Discussion. Aug. 888
Elliott, R. P., *et al.: Orientation of Cast Beryllium.* Aug. 890
Embrittlement of NaCl by Surface Compound Formation. Aug. 769
Ence, E., and Margolin, H.: *Observations on the Ti-Zr System.* Feb. . 205
Phase Relations in the Titanium-Aluminum System. Feb. 151
Study of the Ti-Cu-Zr System and the Structure of Ti_2Cu. Apr. 320
End-Point Temperature Control of the Basic Oxygen Furnace. Feb. 118
Discussion. Aug. 887
Environmental Effects on the Mechanical Properties of Ionic Solids with Particular Reference to the Joffe Effect. Discussion. Aug. 874
Ermanis, F., *et al.: Reinvestigation of the Systems Ti-Cr and Ti-V.* Oct. 904
Eustice, A. L., and Carlson, O. N.: *Effect of Hydrogen on the Tensile Properties of Iodide Vanadium.* Apr. 238
Eutectic composition:
determination by zone-melting. Apr. 383
Evaluation of Procedures in Quantitative Metallography for Volume-Fraction Analysis. Apr. 344
Evaporation of Solutes in Floating Zone Refining of Semiconductors. Dec. 1154
Evolution of Textures in FCC Metals, Part II: Alloys of Copper with Phosphorus, Arsenic, and Antimony. Aug. 720
Extractive Metallurgy Division Lecture, 1961. Apr. 210

F

Farrar, P. A., *et al.: Reinvestigation of the Systems Ti-Cr and Ti-V.* Oct. 904
Farrar, P. A., and Margolin, Harold: *Titanium Rich Region of the Titanium-Aluminum-Vanadium System.* Dec. 1214
Fatigue:
effect, interstitial atoms, Ti. Oct. . 918
Faulring, G. M., *et al.: Structural Relationships Between Precipitate and Matrix in Cobalt-Rich Cobalt-Titanium Alloys.* Aug. 747
fcc metals:
wire texture on stacking fault energy. Apr. 236
Feder, H. M. *et al.: Cadmium-Uranium Phase Diagram.* Aug. 789
Feng, C., and Levesque, P.: *Formation of Sigma Phase and Its Effect on the Workability of Mo-Re Alloys.* Dec. 1278
Fiedler, H. C.: *Use of Vanadium Nitride Inclusions for the Development of Cube-on-Edge Texture in 3 pct. Fe.* Dec. 1201
Fine, M. E., and Hendrickson, A. A.: *Solid Strengthening of Ag by Al.* Oct. 967
Strain Aging in Silver-Base Al Alloys. Feb. 103
Fine, M. E., and Herman, H.: *Precipitation Processes in Copper-Rich Copper-Iron Alloys.* Discussion. Aug. 876
Fine, M. E., and Koppenaal, T. J.: *Yield Points in Alpha Cu-Al Single Crystals.* Dec. 1178
Fisher, R. D., *et al.: Viscous Shear as an Agent for Grain Refinement in Cast Metal.* Apr. 419
Fleischer, R. L., and Hosford, W. F., Jr.: *Easy Glide and Grain Boundary Effects in Polycrystalline Aluminum.* Apr. 244
Flinn, R. A., *et al.: Phase Equilibria and Elevated-Temperature Properties of Some Alloys in the System Ni_3Cr-Ni_3Al.* Apr. 400
Floreen, S.: *Environmental Effects on the Mechanical Properties of Ionic Solids with Particular Reference to the Joffe Effect.* Discussion. Aug. 874
Fluid Flow Control During Solidification. Part I: Magnetic Stirring in the Plane of the Solid-Liquid Interface. Apr. 331
Flynn, P. W., *et al.: On the Thermally Activated Mechanism of Prismatic Slip in Magnesium Single Crystals.* Dec. 1148
Forgend, W. D., *et al.: Structural Relationships Between Precipitate and Matrix in Cobalt-Rich Cobalt-Titanium Alloys.* Aug. 747
Formation of Sigma Phase and Its Effect on the Workability of Mo-Re Alloys. Dec. 1278
Fountain, R. W., *et al.: Structural Relationships Between Precipitate and Matrix in Cobalt-Rich Cobalt-Titanium Alloys.* Aug. 747
Fracture Behavior of Silver Chloride-Alumina Composites. Aug. 792
Fraser, M. J.: *Observations on the Thermal Etching of Silicon Iron.* Discussion. Aug. 874
Free Energies of Formation of Gaseous Metal Oxides. Apr. 300
Free Energy of Formation of CdSb. Apr. 242
Friction:
influence alloying elements, iron and steel. Dec. 1158
Fujishiro, S., and Gokcen, N. A.: *Thermodynamic Properties of Cr_3C_2 at High Temperatures.* Apr. 275

G

Gadolinium-Cobalt System. June 591
Gadolinium-Iron System. June 585
Gadolinium-Nickel System. June 588
Gallium:
segregation of impurities on crystallinity. Aug. 889
Garofalo, F., *et al.: Creep and Creep-Rupture Relationships in an Austenitic Stainless Steel.* Apr. 310
Gaudin, A. M.: *Separation Engineering on the Moon.* Apr. 210
Giessen, B. C., *et al.: Constitution Diagram Niobium (Columbium)-Rhenium.* Oct. 1009
Gill, K. J., and Chiotti, P.: *Phase Diagram and Thermodynamic Properties of the Thorium-Zinc System.* June 567
Gilman, J. J.: *Prismatic Glide in Cadmium Crystals.* June 456
Gjostein, N. A.: *Effects of Grain Boundary Structure on Precipitate Morphology in an Fe-1.55 Pct Si Alloy.* Apendix. Oct. 916
Gleiser, Molly: *Free Energies of Formation of Gaseous Metal Oxides.* Apr. 300
Glenn, R. C., and Aul, F. W.: *Artifacts in Extraction Replicas.* Dec. 1275
Gokcen, N. A.: *Solubility of Nitrogen in Liquid Manganese.* Feb. 200
Gokcen, N. A., and Dodd, R. G.: *Solubility of Nitrogen in Liquid-Iron Manganese Alloys.* Apr. 233
Gokcen, N. A., and Fujishiro, S.: *Thermodynamic Properties of Cr_3C_2 at High Temperatures.* Apr. 275
Gold:
deformation effects, Cu_3Au. Oct. ... 1049
explosive shock wave effects, AuAg alloy. Feb. 90
Goldak, A. J., and Parr, J. G.: *Phase Relations in the Titanium-Aluminum System.* Discussion. Aug. .. 883
Structure of Ti_3Al. June 639
Study of the Ti-Cu-Zr System and the Structure of Ti_2Cu. Discussion. Aug. 888
Gonzalez, O. D., and Wriedt, H. A.: *Solubility of Nitrogen in Solid Iron-Nickel Alloys Near 1000°C.* June . 532
Gould, G. C., and Beattie, H. J.: *Hardening Mechanism in Nitralloy-N Steel.* Aug. 893

Gould, J. R.: *Evaporation of Solutes in Floating Zone Refining of Semiconductors.* Dec. 1154
Grain Refinement of Steel Ingots by Solidification in a Moving Electromagnetic Field. Oct. 993
Grant, N. J., *et al.*: *Constitution Diagram Niobium (Columbium)-Rhenium.* Oct. 1009
Grant, N. J., and Preston, Oliver: *Dispersion Strengthening of Copper by Internal Oxidation.* Feb. 164
Grant, N. J., and Zwilsky, K. M.: *Dispersion Strengthening in the Copper-Alumina System.* Apr. 371
Graphite:
tensile properties, hot-worked pyrolite. Oct. 1085
Grenier, E. G., *et al.*: *Structure and Associated Properties of an Age-Hardening Copper Alloy.* June 503
Growth of Cobalt Crystals for Deformation Studies. Dec. 1263
Growth of Large Single Crystals of 99.9 Pct Iron of Controlled Orientation. Aug. 744
Gücer, D. E.: *On the Role of Strain Hardening in the Plastic Range Fatigue.* Apr. 415
Gulbransen, E. A., and Andrew, K. F.: *Vapor Pressure Studies on Iron and Chromium and Several Alloys of Iron, Chromium, and Aluminum.* Dec. 1247
Gurinsky, D. H., and Schweitzer, D. G.: *Kinetic and Equilibrium Studies of Redox Reactions in Liquid Bismuth.* Feb. 192
Gurland, J.: *Comparison of Dispersion Hardening in Four Silver-Base Alloys of Equivalent Composition.* Apr. 407
Guy, A. G., and Pavlick, J. E.: *Acceleration of Deformation by Concurrent Phase Change.* Aug. 802
Guy, A. G., and Philibert, J.: *Effect of Strain on Diffusion in Metals.* Dec. 1174
Gwathmey, A. T., *et al.*: *Rates of Formation and Structure of Oxide Films Formed on a Single Crystal of Iron.* Apr. 257

H

Hagel, W. C., and Beattie, H. J.: *Intragranular Precipitation of Intermetallic Compounds in Complex Austenitic Alloys.* Feb. 28
Hagel, W. C., and Westbrook, J. H.: *Silver Diffusion in the Intermetallic Compound AgMg.* Oct. 951
Hammond, A. M., *et al.*: *Phase Equilibria and Elevated Temperature Properties of Some Alloys in the System Ni_3Cr-Ni_3Al.* Apr. 400
Hardening Mechanism in Nitralloy-N Steel. Aug. 893
Hardness Anisotropy in Single Crystal and Polycrystalline Magnesium. June 554
Harris, W. F., and Easha, Joseph, Jr.: *Control of Oxygen in Copper During Refining.* Dec. 1264
Harrison, J. D., and Tiller, W. A.: *Optimum Conditions for Zone Refining.* June. 649
Harvey, D. J.: *Effect of Arsenic and Tellurium on the Surface Tension of Lead.* Apr. 266
Haszko, S. E.: *Rare-Earth Gallium Compounds Having the Aluminum-Boride Structure.* Feb. 201
Hauser, J. J.: *Yield Point and Easy Glide in Silver Single Crystals.* Apr. 305
Hayden, H. W., *et al.*: *Sintering and Strength of Coated and Co-Reduced Nickel Tungsten Powder.* Dec. ... 1225
Hays, C., *et al.*: *Zirconium-Platinum Alloy System.* June 445
Heats of Solution in Liquid Tin of the Group 111 Elements Aluminum, Gallium, Indium, and Thallium. Aug. . 683
Heckel, R. W.: *Analysis of Powder Compaction Phenomena.* Oct. 1001
Density-Pressure Relationships in Powder Compaction. Aug. 671
Hehemann, R. F., and Matas, S. J.: *Structure of Bainite in Hypoeutectoid Steels.* Feb. 179
Hein, E., and Dodd, R. A.: *Softening of Strain-Hardened Polycrystalline Copper during Reversed Stress Fatigue and Tensile Fatigue.* Dec. 1095
Henderson, John, *et al.*: *Density of Liquid Iron Silicates.* Aug. 807
Self-Diffusion of Aluminum in CaO-SiO_2-Al_2O_3 Melts. Feb. 56
Henderson, John, and Yang, Ling: *Self-Diffusion of Copper in Molten Copper.* Feb. 72
Hendrickson, A. A., and Fine, M. E.: *Solid Strengthening of Ag by Al.* Oct. 967
Strain Aging in Silver-Base Al Alloys. Feb. 103
Herman, H., and Fine, M. E.: *Precipitation Processes in Copper-Rich Copper-Iron Alloys.* Discussion. Aug. 876
Heterogeneous Nucleation in the Liquid-to-Solid Transformation in Alloys. Feb. 157
Hibbard, W. R., Jr., and Tully, W. R.: *Effect of Orientation on the Recrystallization Kinetics of Cold-Rolled Single Crystals.* Apr. 336
Hicks, W. T.: *Motion Picture Studies of Columbium Oxidation.* Apr. 218
Oxidation of Columbium Monoxide. Apr. 352
Hill, F. J., and Tiemann, T. D.: *Hydrogen Reduction of a Low-Grade Siliceous Iron Ore.* Feb. 68
Hill, M. L., and Johnson, E. W.: *Solubility of Hydrogen in Alpha Iron.* June 622
Hilliard, J. E., and Cahn, J. W.: *Evaluation of Procedures in Quantitative Metallography for Volume-Fraction Analysis.* Apr. 344
Hoch, Michael, *et al.*: *The System Titanium-Zirconium-Oxygen.* Dec. 1162
Hochgraft, F. G., *et al.*: *Penetration of Liquid Bismuth into the Grain Boundaries of a Nickel Alloy.* June 492
Hoffman, R. E., and Hudson, J. B.: *Effect of Hydrostatic Pressure on Self-Diffusion in Lead.* Aug. 761
Holden, F. C., *et al.*: *Effects of Alpha-Soluble Additions (Aluminum, Carbon, Oxygen) on the Structure and Properties of Titanium-Molybdenum Alloys.* Dec. 1110
Notch Sensitivity of Refractory Metals. June 517
Notch Sensitivity of Ti-5Al-2.5Sn, Ti-6Al-4V, and Ti-2Fe-2Cr-2Mo Titanium Alloys. Dec. 1235
Hole, J. C., *et al.*: *Copper, Nickel, and Iron Alloys for the Quantitative Recovery of the Platinum Metals in Ores and Concentrates.* Feb. 145
Honeycutt, C. R., *et al.*: *Grain Refinement of Steel Ingots by Solidification in a Moving Electromagnetic Field.* Oct. 993
Hook, R. E., *et al.*: *Observations on the Ductility and Fracture of Recrystallized Chromium.* Apr. 409
Hornbogen, E.: *Dynamic Effects During Twinning in Alpha Iron.* Aug. 711
Hosford, W. F., Jr.: *Yield Point and Easy Glide in Silver Single Crystals.* Discussion. Aug. 885
Hosford, W. F., Jr., and Fleischer, R. L.: *Easy Glide and Grain Boundary Effects in Polycrystalline Aluminum.* Apr. 244
Hot Pressing of Lead Spheres. June... 649
Howe Memorial Lecture, 1961. Aug. .. 654
Howlett, B. W., *et al.*: *Heats of Solution in Liquid Tin of the Group 111 Elements Aluminum, Gallium, Indium, and Thallium.* Aug. 683
Hu, Hsun: *Study on the Texture Formation in Rolled and Annealed Crystals of Silicon Iron.* Feb. 130
Hu, Hsun, and Szirmae, A.: *Recrystallization of a Silicon-Iron Crystal as Observed by Transmission Electron Microscopy.* Aug. 839
Hudson, J. B., and Hoffman, R. E.: *Effect of Hydrostatic Pressure on Self-Diffusion in Lead.* Aug. 761
Hudson, R. G., *et al.*: *Density of Liquid Iron Silicates.* Aug. 807
Hwu, C. K., *et al.*: *The System Titanium-Zirconium-Oxygen.* Dec. 1162
Hydrogen:
effect, tensile properties, vanadium. Apr. 238
solubility in alpha Fe. June 622
trapping in cold-worked steel. Apr. . 389
Hydrogen Reduction of a Low-Grade Siliceous Iron Ore. Feb. 68

I

Identification of Deformation Twins in a Molybdenum-35 Pct Rhenium Alloy. June 650
Identification of Intermediate Phases in the Manganese-Titanium System. Aug. 687
Imgram, A. G., *et al.*: *Notch Sensitivity of Refractory Metals.* June 517
Inconel 718 and 702 alloys:
phase structure. Dec. 1253
Increased Martensite Formation Temperature in Thin Films. Dec. 1270
in der Schmitten, Wilhelm: *Simple Device to Improve Uniaxial Loading in Compression Tests.* Apr. 409
Indium:
recrystallization in InSb. Oct. 947
Influence of Alloying Elements on the Internal Friction of Cold Worked and Quenched Martensitic Iron and Steel. Dec. 1158
Institute of Metals Division Lecture, 1961. June 422
Internal Friction Behavior of an Aluminum-Aluminum Oxide SAP-Type Alloy. Feb. 206
Interpretation of the Rolling Texture of Copper. June 461
Intergranular Precipitation of Intermetallic Compounds in Complex Austenitic Alloys. Feb. 28
Intrater, Josef: *Dilatometric Investigation of Vacuum-Melted Zircaloy-2.* June 567
Iron:
activities, liquid Fe-Si-O. Dec. 1277
alloying elements on friction. Dec. . 1158
base alloys with columbium. Aug. .. 676
crystals, Ferrovac "E". Aug. 744
density, iron oxide-silica. Aug. 807
diffusivity of Armco. Feb. 25

fine grain by shock-loading. Apr. ... 412
grain boundary, morphology. Oct. .. 909
manganese alloys, solubility of nitrogen. Feb. 2
microstructure. Dec. 1240
ore, hydrogen reduction. Feb. 68
oxide films on single crystal. Apr. . 257
recrystallization, alpha Fe-Mo. Oct. 982
reduction rates. Dec. 1221
results of cold-rolling. Aug. 752
review of data, Fe-Ca-O system. June 546
revised iron-carbon temperature-composition. Apr. 323
secondary recrystallization. Apr. .. 413
solubility of hydrogen in alpha. June 622
solubility, liquid lead. Apr. 271
solubility, Ni, liquid Fe-Mn system. Apr. 233
thermodynamics, Fe-Mn-C system. June 479
transformation kinetics. June 498
zone-melted, recovery characteristics. Aug. 850
Iron-Carbon-Sulfur System from 1149° to 1427°C. Feb. 173
Isothermal Transformations of Ti-2.5 Al-16V and Ti-4Al-3 Mo-1V. Feb. 74

J

Jacobs, A. J., and Katz, G.: *X-Ray Diffraction Powder Data of U_6Fe.* Dec. 1273
Jaffe, N., and Dorn, J. E.: *Effect of Temperature on the Creep of Polycrystalline Aluminum by the Cross-Slip Mechanism.* Apr. 229
Jaffee, R. I., *et al.*: *Effects of Alpha-Soluble Additions (Aluminum, Carbon, Oxygen) on the Structure and Properties of Titanium-Molybdenum Alloys.* Dec. 1110
Notch Sensitivity of Refractory Metals. June 517
Notch Sensitivity of Ti-5Al-2.5Sn, Ti-6Al-4V, and Ti-2Fe-2Cr-2Mo Titanium Alloys. Dec. 1235
Reaction of Pure Tantalum with Air, Nitrogen, and Oxygen. Feb. . 110
Jere, G. V., *et al.*: *Thermodynamic Considerations in the Chlorination of Different Oxides Constituting Columbite (Niobite) and Tantalite.* Aug. 866
Johnson, E. W., and Hill, M. L.: *Solubility of Hydrogen in Alpha Iron.* June 622
Johnson, I., *et al.*: *Cadmium-Uranium Phase Diagram.* Aug. 789
Johnston, T. L., *et al.*: *Effect of Grain Size of Polycrystalline Silver Chloride at Various Temperatures.* Feb. 45
Fracture Behavior of Silver Chloride-Alumina Composites. Aug. .. 792
Johnston, W. C., and Tiller, W. A.: *Fluid Flow Control During Solidification. Part 1: Magnetic Stirring in the Plane of the Solid-Liquid Interface.* Apr. 331

K

Kamdar, M. H., *et al.*: *The Ta-W-Re System.* Dec. 1137
Katz, G., and Jacobs, A. J.: *X-Ray Diffraction Powder Data of U_6Fe.* Dec. 1273
Kaufman, M., and Palty, A. E.: *Phase Structure of Inconel 718 and 702 Alloys.* Dec. 1253
Kaufmann, A. R., *et al.*: *Effect of Copper, Nickel, Iron, and Chromium on the Tensile Properties of Preferentially Oriented Beryllium Sheet.* Apr. 364
Kavanagh, J. M., *et al.*: *Copper, Nickel, and Iron Alloys for the Quantitative Recovery of the Platinum Metals in Ores and Concentrates.* Feb. 145
Kendall, E. G., *et al.*: *Zirconium-Platinum Alloy System.* June 445
Kesler, G. H., *et al.*: *Metal Deposition Coefficients in Filament Bundles.* Oct. 927
Use of Heat- and Mass-Transfer Model Studies in the Evaluation of the Rates of Deposition of Metals in Complex Systems. Feb. 9
Kinetic and Equilibrium Studies of Redox Reactions in Liquid Bismuth. Feb. 192
Kinetics of Iron Oxide Reduction Steps. Dec. 1267
Kinetics of Platinum-Catalyzed Hydrogen Reduction of Aqueous Cobalt Sulfate-Ammonium Acetate Solutions. Dec. 1141
Kinetics of Reduction of Magnetite to Iron and Wustite in Hydrogen-Water Vapor Mixtures. Dec. 1186
Kjollesdal, H., and Kofstad, P.: *Oxidation of Niobium (Columbium) in the Temperature Range of 500° to 1200°C.* Apr. 285
Klapp, W. D., *et al.*: *Reaction of Pure Tantalum with Air, Nitrogen, and Oxygen.* Feb. 110
Kleber, E. V., *et al.*: *Gadolinium-Cobalt System,* June 591
Gadolinium-Iron System. June 585
Gadolinium-Nickel System. June .. 588
Knight, D. J.: *Observations on the Decarburization of Mild Steel by Reaction with a Surface Scale.* Aug. . 891
Koehl, B. G., *et al.*: *Reaction of Pure Tantalum with Air, Nitrogen, and Oxygen.* Feb. 110
Kofstad, P., and Kjöllesdal, H.: *Oxidation of Niobium (Columbium) in the Temperature Range 500° to 1200°C.* Apr. 285
Koh, P. K.: *Cube Texture in Ultra-Thin Molybdenum Permalloy Tape.* Feb. 50
Komarek, K., *et al.*: *Note on the Pb-Se Phase Diagram.* Dec. 1269
Koppenaal, T. J., and Fine, M. E.: *Yield Points in Alpha Cu-Al Single Crystals.* Dec. 1178
Kraft, R. W.: *Technique for Determining Orientation Relationships and Interfacial Planes in Polyphase Alloys: Application to Controlled Eutectic Specimen.* Aug. 704
Kraft, R. W., and Albright, D. L.: *Microstructure of Unidirectionally Solidified Al-$CuAl_2$ Eutectic.* Feb. 95
Kramer, I. R.: *Delay Time in Single Crystals of Aluminum, Zinc, and Iron.* June 474
Effect of Surface-Active Agents on Mechanical Behavior of Aluminum Single Crystals. Oct. 989
Kramer, I. R., and Demer, L. J.: *Effect of Surface Removal on the Plastic Behavior of Aluminum Single Crystals.* Aug. 780
Krishnan, V., *et al.*: *Thermodynamic Considerations in the Chlorination of Different Oxides Constituting Columbite (Niobite) and Tantalite.* Aug. 866
Krivsky, W. A., and Schuhmann, R., Jr.: *Derivation of Phase Diagram for the Silicon-Oxygen-Carbon System.* Oct. 898
Kunzler, J. E., and Buehler, E.: *Observations Concerning Zone Refining and Thermal Treatment of Molybdenum from Low Temperature Resistance Measurements.* Oct. 957
Kurfman, V. B.: *Nucleation Catalysis by Carbon Additions to Magnesium Alloys.* June 540

L

Lander, H. N., *et al.*: *Thermochemical Model of the Blast Furnace.* June . 485
Langenberg, F. C., *et al.*: *Grain Refinement of Steel Ingots by Solidification in a Moving Electromagnetic Field.* Oct. 993
Lattice Strains and X-Ray Stress Measurement. Oct. 962
Laurent, M., *et al.*: *Anomaly in the Rate of Strain Hardening of Zinc Single Crystals.* Feb. 204
Lawless, K. R., *et al.*: *Rates of Formation and Structure of Oxide Films Formed on a Single Crystal of Iron.* Apr. 257
Lawley, A., and Schadler, H. W.: *Identification of Deformation Twins in a Molybdenum-35 Pct Rhenium Alloy.* June 650
Lead:
arsenic and tellurium on surface tension. Apr. 266
hot pressing, spheres. June 649
hydrostatic pressure on self-diffusion. Aug. 761
Pb-Se phase diagram. Dec. 1269
relationships, nucleation, solid from liquid. June 607
solubility, solution of sulfur. Apr. .. 295
solution rate, Cu, nickel and alloys. Apr. 279
Leighly, H. P., Jr.: *Mercury Embrittlement of Titanium Alloy RC-130-A.* Apr. 408
Lenel, F. V., *et al.*: *Temperature Dependence of the Yielding Behavior of SAP=Type Dispersion Strengthened Alloys.* Aug. 892
Lenel, L. V., and Ansell, G. S.: *Creep of a Recrystallized Aluminum SAP-Type Alloy.* June 452
Lenhart, R. E., and Philip, T. V.: *Secondary Recrystallization Kinetics in Singly Oriented Silicon Iron,* June 439
Leslie, W. C.: *Control of Annealing Texture by Precipitation in Cold-Rolled Iron.* Aug. 752
Leslie, W. C., *et al.*: *Recrystallization of Dilute Alpha Iron-Molybdenum Solid Solutions.* Oct. 982
Recrystallization of Iron and Iron-Manganese Alloys. Aug. 691
Levesque, P., and Feng, C.: *Formation of Sigma Phase and Its Effect on' the Workbility of Mo-Re Alloys.* Dec. 1278
Lewis, J. R., *et al.*: *Kinetics of Reduction of Magnetite to Iron and Wustite in Hydrogen-Water Vapor Mixtures.* Dec. 1186
Li, C. H., *et al.*: *Effect of Grain Size of Polycrystalline Silver Chloride at Various Temperatures.* Feb. ... 45
Fracture Behavior of Silver Chloride-Alumina Composites. Aug. .. 792
Li, C. H., and Nowick, A. S.: *Effect of Quenching on the Grain Boundary Relaxation in Solid Solution.* Feb. 108
Lipsitt, H. A., *et al.*: *Observations on the Ductility and Fracture of Recrystallized Chromium.* Apr. 409
Lipsitt, H. A., and Wang, D. Y.: *Effects of Interstitial Solute Atoms on the Fatigue Limit Behavior of Titanium.* Oct. 918
Liquid-Solid Phase Distribution Studies in the Systems Iron-Lead, Chro-

mium-Tin, and Nickel-Silver. Apr.. 271
Liquid State and Liquid-Solid Transition, June 422
Lithium:
deformation, fracture, fluoride crystals. Feb. 35
Low, J. R., Jr., and Stein, D. F.: *Growth of Large Single Crystals of 99.9 Pct Iron of Controlled Orientation.* Aug. 744
Lutz, C. F., and Mehl, R. F.: *Diffusion in Gamma Brass.* June..... 561
Liu, Y. C., and Richman, R. H.: *Evolution of Textures in FCC Metals, Part II: Alloys of Copper with Phosphorus, Arsenic, and Antimony.* Aug. 720

Mc

McCabe, C. L., *et al.: Mn Vapor Pressures in the Mn-Fe System.* Aug. . 895
Thermodynamic Activities in the Fe-Mn-C System. June 479
McCoy, C. W., and Simkovich, A.: *Effect of Nickel on the Chromium and Carbon Relationship in Stainless Steel Refining.* Apr. 416
McHargue, C. J.: *Effect of Initial Orientation on the Fiber Texture of Aluminum Rods.* Aug. 812
McKewan, W. M.: *Reduction Kinetics of Magnetite in H_2-H_2O-N_2 Mixtures.* Feb. 140
McQueen, R. G., and Zukas, E. G.: *Shock Loading to Produce Fine Grain Structure.* Apr. 412

M

Machlin, E. S., *et al.: Embrittlement of NaCl by Surface Compound Formation.* Aug. 769
Magnesium:
base alloys for fuel elements. Oct. . 1065
cyclic loading, MgO crystals. Oct. . 1086
diffusion of Ag in AgMg. Oct. 951
hardness anistropy. June 554
Mg-Al-Ca-Zn system, phase relationships. June..... 643
nucleation catalysis, Mg-Al. June .. 540
solid constitution. June 644
thermally activated slip in crystals. Dec. 1148
Magnesium-Rich Region of the Magnesium-Yttrium Phase Diagram. Feb. 207
Magnetism in a High-Carbon Stainless Steel. Aug. 787
Magnetite:
reduction, H_2-H_2O-N_2 mixtures. Feb.. 140
Mallon, H. D.: *Metal Crystal Orientation Using the Polarizing Microscope.* Feb. 199
Maloof, S. R., *et al.: Zone Purification of Beryllium.* Aug. 824
Mancini, G. A., *et al.: Transformation Kinetics in High-Purity Iron and Some Iron Binary Alloys.* June.... 498
Manganese:
Mn-Ti system, intermediate phases. Aug. 687
Manning, G. K., *et al.: Strengthening of Iron-Base Alloys Containing Columbium.* Aug. 676
Margolin, H., *et al.: Reinvestigation of the Systems Ti-Cr and Ti-V.* Oct.. 904
Margolin, H., and Ence, Elmars: *Observations on the Ti-Zr System.* Feb. 205
Phase Relations in the Titanium-Aluminum System. Feb. 151
Study of the Ti-Cu-Zr System and the Structure of Ti_2Cu. Apr. 320
Margolin, H., and Farrar, P. A.: *Titanium Rich Region of the Titanium-Aluminum-Vanadium System.* Dec.. 1214
Markowitz, J. M.: *Thermal Diffusion of Hydrogen in Alpha-Delta Zircaloy-2.* Aug. 819
Martin, A. E., *et al.: Cadmium-Uranium Phase Diagram.* Aug. 789
Matas, S. J., and Hehemann, R. F.: *Structure of Bainite in Hypoeutectoid Steels.* Feb. 179
Mate, J., *et al.: On the Thermally Activated Mechanism of Prismatic Slip in Magnesium Single Crystals.* Dec. 1148
Mehl, R. F., and Lutz, C. F.: *Diffusion in Gamma Brass.* June 561
Meissner, H. P., and Schora, F. C.: *Reduction Rates of Iron Ores in a Fluid Bed Reactor.* Dec. 1221
Melting of Malleable Nickel and Nickel Alloys. June..... 629
Mercury Embrittlement of Titanium Alloy RC-130-A. Apr. 408
Metal Crystal Orientation Using the Polarizing Microscope. Feb. 199
Metal Deposition Coefficients in Filament Bundles. Oct. 927
Metal oxides:
gaseous. Apr. 300
Metcalfe, A. G., *et al.: Orientation of Cast Beryllium.* Aug. 890
Viscous Shear as an Agent for Grain Refinement in Cast Metal. Apr..... 419
Metzger, M., *et al.: Effect of Copper on the Corrosion of High-Purity Aluminum in Hydrochloric Acid.* Apr. .. 250
Meyer, H. W., *et al.: Thermochemical Model of the Blast Furnace.* June 485
Michalak, J. T., *et al.: Recrystallization of Iron and Iron-Manganese Alloys.* Aug. 691
Michalak, J. T., and Paxton, H. W.: *Some Recovery Characteristics of Zone-Melted Iron.* Aug. 850
Microstructure of Unidirectionally Solidified Al-$CuAl_2$ Eutectic. Feb. ... 95
Miller, E., *et al.: Note on the Pb-Se Phase Diagram.* Dec. 1269
Mincher, A. L., and Sheely, W. F.: *Effect of Structure and Purity on the Mechanical Properties of Columbium.* Feb..... 19
Miscibility gaps:
calculation of activities. Apr..... 377
Mitchell, W. R., *et al.: Zone Purification of Beryllium.* Aug..... 824
Mitra, S. K., *et al.: On the Intersection Mechanism of Plastic Deformation in Aluminum Single Crystals.* Dec. 1206
Mizer, D., and Clark, J. B.: *Magnesium-Rich Region of the Magnesium-Yttrium Phase Diagram.* Feb. 207
Mn Vapor Pressures in the Mn-Fe System. Aug. 895
Molybdenum:
changes by heat-treating, melting, zone refining. Oct. 957
deformation twins, Mo-35 pct Re. June 650
effect, alpha soluble additions, Ti-Mo. Dec. 1110
permalloy tape texture. Feb. 50
recrystallization, alpha Fe-Mo. Oct. . 982
sigma phase, Mo-Re alloys. Dec. ... 1278
strain-aging in arc-cast. Oct. 1055
yielding in torsion, arc-cast. Aug. .. 732
Molybdenum by Direct Thermal Dissociation of Molybdenum Disulfide. Apr. 356
Mondolfo, L. F., and Sundquist, B. E.: *Heterogeneous Nucleation in the Liquid-to-Solid Transformation in Alloys.* Feb..... 157
Orientation Relationships in the Heterogeneous Nucleation of Solid Lead from Liquid Lead. June 607
Moon:
separation engineering on. Apr. ... 210
Morgan, D. W., *et al.: Dispersion-Hardening in Binary Titanium-Copper Alloys.* Discussion. Aug. 875
Mote, J. D., *et al.: Effect of Temperature on Yielding in Single Crystals of the Hexagonal Ag-Al Intermetallic Phase.* Aug. 858
Motion Picture Studies of Columbium Oxidation. Apr. 218
Mullendore, J. A., *et al.: Zone Purification of Beryllium.* Aug. 824
Mura, T., *et al.: Influence of Alloying Elements on the Internal Friction of Cold Worked and Quenched Martensitic Iron and Steel.* Dec. 1158
Murray, G. T., *et al.: Embrittlement of NaCl by Surface Compound Formation.* Aug. 769

N

Nash, S. K., *et al.: Hardness Anistropy in Single Crystal and Polycrystalline Magnesium.* June 554
Neighbor, G. W., and Abrahams, M. S.: *Determination of the Glide Elements and Recrystallization in InSb.* Oct. 947
Nevitt, M. V., and Downey, J. W.: *Zirconium-Rich Corners of the Ternary Systems Zr-Co-O and Zr-Ni-O.* Oct. 1014
Nickel:
bismuth penetration, Ni alloy. June . 492
malleability of alloys. June..... 629
nickel tungsten powder, sintering. Dec. 1225
redetermination of solvus. Feb. 14
solution rate in lead. Apr. 279
stability, Ni-MgO alloys, Dec. 1099
Nilsson, I., *et al.: Spectrochemical Slag Analysis with the Tape Technique.* Aug. 826
Niobium (see Columbium)
Nitralloy-N:
hardening mechanism. Aug. 893
Nitrogen:
solubility in:
Fe-Ni alloys. June 532
iron manganese alloys. Feb. 2
liquid Fe-Ni system. Apr. 233
liquid manganese. Feb. 200
tantalum. Oct. 937
Nole, V. F., *et al.: Structure and Associated Properties of an Age-Hardening Copper Alloy.* June..... 503
Nordheim, Rolf, *et al.: Constitution Diagram Niobium (Columbium)-Rhenium.* Oct. 1009
Norton, J. T., and Donachie, M. J., Jr.: *Lattice Strains and X-Ray Stress Measurement.* Oct..... 962
Notch Sensitivity of Refractory Metals. June 517
Notch Sensitivity of Ti-5Al-2.5Sn, Ti-6Al-4V, and Ti-2Fe-2Cr-2Mo Titanium Alloys. Dec. 1235
Note on the Pb-Se Phase Diagram. Dec. 1269
Novy, V. F., *et al.: Gadolinium-Cobalt System.* June 591
Gadolinium-Iron System. June..... 585
Gadolinium-Nickel System. June . 588
Nowick, A. S., and Li, C. Y.: *Effect of Quenching on the Grain Boundary Relaxation in Solid Solution.* Feb. 108
Nuclear reactors:
Mg base alloys. Oct..... 1065
Nucleation Catalysis by Carbon Additions to Magnesium Alloys. June.. 540

O

Oberle, J. E., *et al.: Metal Deposition Coefficients in Filament Bundles.* Oct. 927
Observations Concerning Zone Refining and Thermal Treatment of Molybdenum from Low Temperature Resistance Measurements. Oct. 957

Observations of the Structure of Aluminum Specimens Grown from the Melt. Aug. 737
Observations on the Decarburization of Mild Steel by Reaction with a Surface Scale. Aug. 891
Observations on the Thermal Etching of Silicon Iron. Discussion. Aug. ... 874
Observations on Twinning in Zone-Refined Tungsten. Aug. 741
Observations on the Ductility and Fracture of Recrystallized Chromium. Apr. 409
Observations on the Powdering of Yttrium Hydride. June 646
Observations on the Thermal Etching of Silicon Iron. Discussion. Aug. .. 874
Observations on the Ti-Zr System. Feb. 205
Ogden, H. R., *et al.: Effects of Alpha-Soluble Additions (Aluminum, Carbon, Oxygen) on the Structure and Properties of Titanium-Molybdenum Alloys.* Dec. 1110
Notch Sensitivity of Refractory Metals. June 517
Notch Sensitivity of Ti-5Al-2.5Sn, Ti-6Al-4V, and Ti-2Fe-2Cr-2Mo Titanium Alloys. Dec. 1235
Olsen, K. H.: *Fracture Behavior of Silver Chloride-Alumina Composites.* Appendix. Aug. 792
On the Existence of Lower Tantalum Oxides. June 647
On the Intersection Mechanism of Plastic Deformation in Aluminum Single Crystals. Dec. 1206
On the Thermally Activated Mechanism of Prismatic Slip in Magnesium Single Crystals. Dec. 1148
Optimum Conditions for Zone Refining. June. 649
Orientation of Cast Beryllium. Aug. .. 890
Orientation Relationships in the Heterogenous Nucleation of Solid Lead from Liquid Lead. June 607
Oriented Growth Mechanism of the Formation of Recrystallization Textures in Aluminum. Aug. 831
Osborne, P. W., *et al.: On the Intersection Mechanism of Plastic Deformation in Aluminum Single Crystals.* Dec. 1206
O'Shea, R. P., *et al.: Quasibinary System PbTe-Bi.* Dec. 1266
Osmium:
spectral emissivity. Apr. 248
Oxidation of Columbium Monoxide. Apr. 352
Oxidation of Niobium (Columbium) in the Temperature Range 500° to 1200° C. Apr. 285
Oxides:
activities in $CaO-FeO-Fe_2O_3$ melts. Dec. 1090
Oxley, J. H., *et al.: Metal Deposition Coefficients in Filament Bundles.* Oct. 927
Oxygen:
solubility in: tantalum. Oct. 937
thorium. Oct. 924
Oxygen Potentials and Phase Equilibria in the Fe-Ca-O System. June 546
Oxley, J. H., *et al.: Use of Heat- and Mass-Transfer Model Studies in the Evaluation of the Rates of Deposition of Metals in Complex Systems.* Feb. 9

P

Palty, A. E., and Kaufman, M.: *Phase Structure of Inconel 718 and 702 Alloys.* Dec. 1253
Parlee, Norman, *et al.: Iron-Carbon-Sulfur System from 1149° to 1427° C.* Feb. 173
Parr, J. G., and Goldak, A. J.: *Phase Relations in the Titanium-Aluminum System.* Discussion. Aug. .. 883
Structure of Ti_3Al. June 639
Study of the Ti-Cu-Zr System and the Structure of Ti_2Cu. Discussion. Aug. 888
Parr, J. G., and Purdy, G. R.: *Study of the Titanium-Nickel System Between Ti_2Ni and TiNi.* June 636
Parthasarathi, M. N., and Beck, P. A.: *Interpretation of the Rolling Texture of Copper.* June 461
Oriented Growth Mechanism of the Formation of Recrystallization Textures in Aluminum. Aug. 831
Particles:
determination per unit volume. Oct. 975
Patel, C. C., *et al.: Thermodynamic Considerations in the Chlorination of Different Oxides Constituting Columbite (Niobite) and Tantalite.* Aug. 866
Pavlick, J. E., and Guy, A. G.: *Acceleration of Deformation by Concurrent Phase Change.* Aug. 802
Paxton, H. W., *et al.: Thermodynamic Activities in the Fe-Mn-C System.* June 479
Paxton, H. W., and Michalak, J. T.: *Some Recovery Characteristics of Zone-Melted Iron.* Aug. 850
Paxton, H. W., *et al.: Mn Vapor Pressures in the Mn-Fe System.* Aug. 895
Peck, J. F., and Thomas, D. A.: *Study of Fibrous Tungsten and Iron.* Dec. 1240
Peiffer, H. R.: *Effect of Plastic Deformation on the Electrical Resistivity of Composite Silver Alumina Crystals.* Feb. 60
Penetration of Liquid Bismuth into the Grain Boundaries of a Nickel Alloy. June 492
Peretti, E. A., *et al.: Quasibinary System PbTe-Bi.* Dec. 1266
Permeability and Diffusion of Hydrogen through Palladium. Discussion. Aug. 873
Pestel, Guenter, *et al.: Grain Refinement of Steel Ingots by Solidification in a Moving Electromagnetic Field.* Oct. 993
Peterson, D. T.: *Thermodynamics and Kinetics of the Deoxidation of Thorium by Calcium.* Oct. 924
Phase Diagram and Thermodynamic Properties of the Thorium-Zinc System. June 567
Phase Equilibria and Elevated-Temperature Properties of Some Alloys in the System Ni_3Cr-Ni_3Al. Apr. 400
Phase Relations in the Titanium-Aluminum System. Feb. 151
Discussion. Aug. 883
Phase Relationships in the Magnesium-Rich Region of the 335° C Tetrahedron of the Mg-Al-Ca-Zn Phase Diagram. June 643
Phase Structure of Inconel 718 and 702 Alloys. Dec. 1253
Philbrook, W. O: *End-Point Temperature Control of the Basic Oxygen Furnace.* Discussion. Aug. 887
Philibert, J., and Guy, A. G.: *Effect of Strain on Diffusion in Metals.* Dec. 1174
Philip, T. V., and Lenhart, R. E.: *Secondary Recrystallization Kinetics in Singly Oriented Silicon Iron.* June 439
Phillips, W. L., Jr.: *Room-Temperature Deformation and Fracture Characteristics of Lithium-Fluoride Single Crystals.* Feb. 35
Pillay, T. C. M., and Chipman, John: *Activities in Dilute Liquid Solution Fe-Si-O.* Dec. 1277
Platinum:
metals recovery, ores and concentrates. Feb. 145
stacking faults. June 645
Plecity, F. J., *et al.: Recrystallization of Dilute Alpha Iron-Molybdenum Solid Solutions.* Oct. 982
Recrystallization of Iron and Iron-Manganese Alloys. Aug. 691
Plummer, M. E. V., *et al.: Copper, Nickel, and Iron Alloys for the Quantitative Recovery of the Platinum Metals in Ores and Concentrates.* Feb. 145
Plutonium:
density of liquid. Oct. 221
Podgurski, H. H.: *Trapping of Hydrogen in Cold-Worked Steel.* Apr. ... 389
Polonis, D. H., *et al.: Dispersion-Hardening in Binary Titanium-Copper Alloys.* Discussion. Aug. 875
Powder metallurgy:
analysis, compaction, metal powders. Oct. 1001
density-pressure relationships. Aug. 671
Powell, G. W., *et al.: Transformation Kinetics in High-Purity Iron and Some Iron Binary Alloys.* June ... 498
Precipitation Processes in Copper-Rich Copper-Iron Alloys. Discussion. Aug. 876
Preckshot, G. W., and Wynnemer, D. J.: *Thermodynamic Properties for the Zn-Cd System from Electromotive Force Measurement.* Feb. 186
Preston, Oliver, and Grant, N. J.: *Dispersion Strengthening of Copper by Internal Oxidation.* Feb. 164
Prismatic Glide in Cadmium Crystals. June 456
Probst, H. B.: *Observations on Twinning in Zone-Refined Tungsten.* Aug. 741
Production of Controlled Orientation Bicrystals for Grain Boundary Migration Studies. June 641
Production of Submicron Metal Powders by Ball-Milling with Grinding Aids. Dec. 1105
Purdy, G. R., and Parr, J. G.: *Study of the Titanium-Nickel System Between Ti_2Ni and TiNi.* June 636
Purdy, S. M.: *Magnetism in a High-Carbon Stainless Steel.* Aug. 787

Q

Quasibinary System PbTe-Bi. Dec. 1266
Quatinetz Max, *et al.: Production of Submicron Metal Powders by Ball-Milling with Grinding Aids.* Dec. . 1105
Strength and High-Temperature Stability of Dispersion Strengthened Nickel-MgO Alloys. Dec. ... 1099
Quets, J. M., *et al.: Kinetics of Reduction of Magnetite to Iron and Wustite in Hydrogen-Water Vapor Mixtures.* Dec. 1186

R

Ramagopal, G. R., *et al.: Effect of Copper on the Corrosion of High-Purity Aluminum in Hydrochloric Acid.* Apr. 250
Rare-Earth Gallium Compounds Having the Aluminum-Boride Structure. Feb. 201
Rates of Formation and Structure of Oxide Films Formed on a Single Crystal of Iron. Apr. 257
Reaction of Pure Tantalum with Air, Nitrogen, and Oxygen. Feb. 110
Recovery and Recrystallization in 99.98 Pct Cr. Apr. 395

Recrystallization:
columbium, transition element additions. Dec. 1196
creep, Al SAP-type alloy. June..... 452
Cu-P, Cu-As, Cu-Sb alloys. Aug..... 720
dilute Alpha Iron-Molybdenum. Oct.. 982
Fe, Fe-Mn alloys. Aug..... 691
in Al. Aug..... 831
in In Sb. Oct..... 947
in 99.98 pct Cr. Apr..... 395
kinetics in Si-Fe. June..... 439
molybdenum. Oct..... 957
orientation effect, cold-rolled crystals. Apr..... 336
secondary, Alpha iron. Apr..... 413
Si-Fe crystal. Aug..... 839
vanadium, transition element additions. Dec..... 1193
zirconium, transition element additions. Dec..... 1199
Recrystallization of Dilute Alpha Iron-Molybdenum Solid Solutions. Oct. 982
Recrystallization of Iron and Iron-Manganese Alloys. Aug..... 691
Recrystallization of a Silicon-Iron Crystal as Observed by Transmission Electron Microscopy. Aug. 839
Redetermination of the Chromium and Nickel Solvuses in the Chromium-Nickel System. Feb..... 14
Correction. June 652
Reduction:
kinetics, magnetite to iron and wustite. Dec..... 1186
Reduction Kinetics of Magnetite in H_2-H_2O-N_2 Mixtures. Feb..... 140
Reduction Rates of Iron Ores in a Fluid Bed Reactor. Dec. 1221
Refractory metals:
melting and zone refining. Oct..... 1029
notch sensitivity. June..... 517
Reinvestigation of the Systems T-Cr and Ti-V. Oct..... 904
Rennhack, E. H.: *Zinc-Rich Corner of the Zn-Fe-Al System.* Aug. 775
Residual lattice strains:
X-ray stress measurement. Oct..... 962
Rezek, J., and Craig, G. B.: *Effect of Striation Substructure on the Critical Resolved Shear Stress of Zinc Single Crystals.* Aug..... 715
Rhenium:
axial thermal expansion. Oct..... 1081
constitution diagram, Cb-Re. Oct. .. 1009
Rhines, F. N., and DeHoff, R. T.: *Determination of Number of Particles Per Unit Volume From Measurements Made on Random Plane Sections: General Cylinder and Ellipsoid.* Oct..... 975
Richman, R. H., and Liu, Y. C.: *Evolution of Textures in FCC Metals, Part II: Alloys of Copper with Phosphorus, Arsenic, and Antimony.* Aug. 720
Riegger, O. K., *et al.*: *Sulfide Inclusions in Steel.* Apr..... 220
Roach, J. D.: *Observations on the Powdering of Yttrium Hydride.* June .. 646
Robertson, W. D., *et al.*: Structure and Associated Properties of an Age-Hardening Copper Alloy. June ... 503
Robertson, W. D., and Boettner, R. C.: *Study of the Growth of Voids in Copper During the Creep Process by Measurement of the Accompanying Change in Density.* June 613
Role of Chemistry in Metallurgical Research. Aug..... 654
Role of Dilute Binary Transition Element Additions on the Recrystallization of Vanadium. Dec..... 1193
Role of Dilute Binary Transition Elements on the Recrystallization of Zirconium. Dec. 1199
Role of Dilute Transition Element Additions on the Recrystallization of Columbium. Dec. 1196
Role of Strain Hardening in the Plastic Range Fatigue. Apr..... 415
Role of Stress in Hydrogen Induced Delayed Failure. Discussion. Aug. 877
Room-Temperature Deformation and Fracture Characteristics of Lithium-Fluoride Single Crystals. Feb. 35
Ruthenium:
spectral emissivity. Apr..... 248
Rutile:
chlorination. Dec..... 1121
Rutter, J. W., and Aust, K. T.: *Production of Controlled Orientation Bicrystals for Grain Boundary Migration Studies.* June 641

S

St. Pierre, G. R., and Wilhelm, A. J.: *Kinetics of the Iron Oxide Reduction Steps.* Dec..... 1267
Saarivirta, Matti J.: *Development of Copper Base High Strength-Medium Conductivity Alloys Cu-Ti-Sn and Su-Ti-Sn-Cr.* June..... 596
SAP-Type alloys:
creep, recrystallized Al. June 452
internal friction behavior. Feb. 206
temperature dependence effect. Aug. 892
Sawyer, J. C.: *Catastrophic Oxidation of Stainless Steel in Presence of Lead Oxide.* Feb. 63
Schafer, R. J., *et al.*: *Strength and High-Temperature Stability of Dispersion Strengthened Nickel-MgO Alloys.* Dec. 1099
Production of Submicron Metal Powders by Ball-Milling with Grinding Aids. Dec. 1105
Schemel, J. H.: *Effect of Heat Treatment on the Structure, Mechanical Properties and Corrosion Resistance of Heavy Forged Sections of Zircaloy-2.* Dec. 1129
Scholz, W. G., *et al.*: *Molybdenum by Direct Thermal Dissociation of Molybdenum Disulfide.* Apr. 356
Schora, F. C., and Meissner, H. P.: *Reduction Rates of Iron Ores in a Fluid Bed Reactor.* Dec. 1221
Schuhmann, R., Jr., and Krivsky, W. A.: *Derivation of Phase Diagram for the Silicon-Oxygen-Carbon System.* Oct. 898
Schadler, H. W., and Lawley, A.: *Identification of Deformation Twins in a Molybdenum-35 Pct Rhenium Alloy.* June 650
Schwartz, C. M., *et al.*: *Determination of Interstitial Solid-Solubility Limit in Tantalum and Identification of the Precipitate Phases.* Oct. 937
Schwartz, M., *et al.*: *Hardness Anistropy in Single Crystal and Polycrystalline Magnesium.* June 554
Schweitzer, D. G., and Gurinsky, D. H.: *Kinetic and Equilibrium Studies of Redox Reactions in Liquid Bismuth.* Feb. 192
Secondary Recrystallization in High-Purity Alpha Iron. Apr. 413
Secondary Recrystallization Kinetics in Singly Oriented Silicon Iron. June. 439
Sefton, L. R., *et al.*: *Technique for the Preparation of Thin Films of Two-Phase Alloys Suitable for Use in Transmission Electron Microscopy.* Apr. 406
Seidman, D., *et al.*: *Note on the Pb-Se Phase Diagram.* Dec. 1269
Self-Diffusion of Aluminum in CaO-SiO_2-Al_2O_3 Melts. Feb. 56
Self-Diffusion of Copper in Molten Copper. Feb. 72
Semiconductors:
evaporation of solutes in zone refining. Dec. 1154
melting and zone refining. Oct. 1029
Separation Engineering on the Moon. Apr. 210
Serpan, C. Z., Jr., and Wittenberg, L. J.: *Density of Liquid Plutonium Metal.* Oct. 1017
Sheely, W. F., and Mincher, A. L.: *Effect of Structure and Purity on the Mechanical Properties of Columbium.* Feb. 19
Shepard, L., *et al.*: *Effect of Copper Additions on the Activation Energies for Creep of Aluminum Single Crystals.* June 458
Shock Loading to Produce Fine Grain Structure. Apr. 412
Shock waves:
on gold-silver alloy. Feb. 90
Silicon:
aging supersaturated alpha phase, Cu-Si alloy. Oct. 1074
grain boundary, morphology, Fe-1.55 pct Si. Oct. 909
recrystallization kinetics, Si-Fe sheets. June 439
Si-Fe texture formation. Feb. 130
ternary Laves phases with. Oct. ... 1087
thermodynamics, SiO. Oct. 1021
vanadium nitride, cube-on-edge, Si-Fe. Dec..... 1201
Silver:
alumina alloys, deformation on electrical resistivity. Feb. 60
latent hardening, single crystals. Apr. 305
solubility of nickel. Apr. 271
strengthening by Al. Oct. 967
structural transformations, Ag-50 At. Pct Zn alloy. Oct. 1063
Silver chloride:
effect of grain size on deformation. Feb. 45
Silver Diffusion in the Intermetallic Compound AgMg. Oct. 951
Silverman, E. N.: *Synthetic Inclusions in the FeO-MnO-MnS-SiO_2 System in Equilibrium with Resulfurized Steel.* June 512
Simkovich, A., and McCoy, C. W.: *Effect of Nickel on the Chromium and Carbon Relationship in Stainless Steel Refining.* Apr. 416
Simple Device to Improve Uniaxial Loading in Compression Tests. Apr. 409
Sinclair, G., *et al.*: *Strain Rate and Temperature Dependence of the Yield Point in Mo in Torsion.* Aug. 732
Sintering and Strength of Coated and Co-Reduced Nickel Tungsten Powder. Dec. 1225
Si-O-C system:
derivation phase diagram. Oct. 898
Slag analysis:
tape technique. Aug. 826
Slatosky, W. J.: *End-Point Temperature Control of the Basic Oxygen Furnace.* Feb. 118
Smeal, Charles, *et al.*: *Production of Submicron Metal Powders by Ball-Milling with Grinding Aids.* Dec.. 1105
Smith, J. H. *et al.*: *Mn Vapor Pressures in the Mn-Fe System.* Aug. 895
Softening of Strain-Hardened Polycrystalline Copper during Reversed Stress Fatigue and Tensile Fatigue. Dec. 1095
Solid Constitution in the Magnesium-Rich Region of the Mg-Ca-Zn Phase Diagram. June..... 644
Solid Solution Strengthening of Ag by Al. Oct. 967
Solidification:
fluid flow control. Apr. 331
Solubility of Hydrogen in Alpha Iron. June 622
Solubility of Nitrogen in Liquid-Iron

Manganese Alloys. Apr. 233
Solubility of Nitrogen in Liquid Manganese. Feb. 200
Solubility of Nitrogen in Molten Iron Manganese Alloys. Feb. 2
Solubility of Nitrogen in Solid Iron-Nickel Alloys Near 1000°C. June 532
Solute Segregation During Dendritic Growth. Aug. 844
Solution Rate of Copper, Nickel, and Their Alloys in Lead. Apr. 279
Some Recovery Characteristics of Zone-Melted Iron. Aug. 850
Some Thermodynamic Properties of the Cadmium-Copper System. June ... 527
Spectrochemical Slag Analysis with the Tape Technique. Aug. 826
Speich, G. R.: *Surface Graphitization of a Hypereutectoid Iron-Carbon Alloy.* Apr. 417
Spencer, C. W., *et al.: Penetration of Liquid Bismuth into the Grain Boundaries of a Nickel Alloy.* June 492
Stacking Faults in Platinum. June 645
Spretnak, J. W., *et al.: Transformation Kinetics in High Purity Iron and Some Iron Binary Alloys.* June.... 498
Steady State Creep in a $CuAu_3$ Alloy. Dec. 1280
Steel:
acid Bessemer oxygen-steam process. June 536
alloying elements on friction. Dec. 1158
bainite in hypoeuctoid. Feb. 179
carbon relationship. Apr. 416
catastrophic oxidation in lead oxide. Feb. 63
creep and creep-rupture, stainless. Apr. 310
decarburization. Aug. 891
effect of nickel on chromium and. Apr. 416
grain refinement, solidification, electromagnetic field. Oct. 993
grain size effect on brittle fracture. June 640
inclusions. June 512
magnetism in high-carbon. Aug. ... 787
method, quantitative measurement of carbides in stainless. Oct. 1032
trapping of hydrogen. Apr. 389
Stein, D. F., and Low, J. R., Jr.: *Growth of Large Single Crystals of 99.9 Pct Iron of Controlled Orientation.* Aug. 744
Stein, E. M., *et al.: Strengthening of Iron-Base Alloys Containing Columbium.* Aug. 676
Steiner, R. E., *et al.: Uranium Solubility in Bismuth-Base Liquid Solutions.* Feb. 83
Stevenson, D. A., and Wulff, J.: *Liquid-Solid Phase Distribution Studies in the Systems Iron-Lead, Chromium-Tin, and Nickel-Silver.* Apr. 271
Stevenson, D. A., and Wulff, J.: *Solution Rate of Copper, Nickel, and Their Alloys in Lead.* Apr. 279
Stewart, O. M., *et al.: Determination of Interstitial Solid-Solubility Limit in Tantalum and Identification of the Precipitate Phases.* Oct. 937
Stokes, R. J., *et al.: Effect of Grain Size of Polycrystalline Silver Chloride at Various Temperatures.* Feb. 45
Fracture Behavior of Silver Chloride-Alumina Composites. Aug. .. 792
Strain Aging in Silver-Base Al Alloys. Feb. 103
Strain Rate and Temperature Dependence of the Yield Point in Mo in Torsion. Aug. 732
Strength and High-Temperature Stability of Dispersion Strengthened Nickel-MgO Alloys. Dec. 1099
Strengthening of Iron-Base Alloys Containing Columbium. Aug. 676
Structural Relationships Between Precipitate and Matrix in Cobalt-Rich Cobalt-Titanium Alloys. Aug. ... 747
Structure and Associated Properties of an Age-Hardening Copper Alloy. June 503
Structure of Bainite in Hypoeutectoid Steels. Feb. 179
Structure of Ti_3Al. June 639
Study of Fibrous Tungsten and Iron. Dec. 1240
Study of Fracturing Behavior of Copper and Zinc Coated with Mercury. Apr. 261
Study of the Growth of Voids in Copper During the Creep Process by Measurement of the Accompanying Change in Density. June 613
Study of the Spectral Emissivities and Melting Temperatures of Osmium and Ruthenium. Apr. 248
Study of the Ti-Cu-Zr System and the Structure of Ti_2Cu. Apr. 320
Discussion. Aug. 888
Study of the Titanium-Nickel System Between Ti_3Ni and TiNi. June ... 636
Study on the Texture Formation in Rolled and Annealed Crystals of Silicon Iron. Feb. 130
Discussion. Aug. 878
Stüwe, H. P.: *On Coincidence Sites.* Feb. 203
Sulfide Inclusions in Steel. Apr. 220
Sulfur Equilibria between Gases and Calcium Ferrite Melts. June 464
Sundkvist, G., *et al.: Spectrochemical Slag Analysis with the Tape Technique.* Aug. 826
Sundquist, B. E., and Mondolfo, L. F.: *Heterogeneous Nucleation in the Liquid-to-Solid Transformation in Alloys.* Feb. 157
Orientation Relationships in the Heterogenous Nucleation of Solid Lead from Liquid Lead. June 607
Surface Graphitization of a Hypereutectoid Iron-Carbon Alloy. Apr. 417
Swift, R. E., *et al.: Zirconium-Platinum Alloy System.* June 445
Synthetic Inclusions in the FeO-MnO-MnS-SiO_2 System in Equilibrium with Resulfurized Steel. June ... 512
System Titanium-Zirconium-Oxygen. Dec. 1162
Szirmae, A., and Hu, Hsun: *Recrystallization of a Silicon-Iron Crystal as Observed by Transmission Electron Microscopy.* Aug. 839

T

Taggart, R., *et al.: Dispersion-Hardening in Binary Titanium-Copper Alloys.* Discussion. Aug. 875
Tamura, I., *et al.: Influence of Alloying Elements on the Internal Friction of Cold Worked and Quenched Martensitic Iron and Steel.* Dec. .. 1158
Tanaka, K., *et al.: Effect of Temperature on Yielding in Single Crystals of the Hexagonal Ag-Al Intermetallic Phase.* Aug. 858
Tanner, L. E.: *Isothermal Transformations of Ti-2.5 Al-16 V and Ti-4Al-3 Mo-1V.* Feb. 74
Tantalum:
lower oxides. June 647
reactions with oxygen, nitrogen and air. Feb. 110
solubility limits of C, Ni, O. Oct. .. 937
thermodynamic considerations. Aug. 866
Taranto, J., and Brotzen, F. R.: *Stacking Faults in Platinum.* June..... 645
Ta-W-Re System. Dec. 1137
Technique for Determining Orientation Relationships and Interfacial Planes in Polyphase Alloys: Application to Controlled Eutectic Specimen. Aug. 704
Technique for the Preparation of Thin Films of Two-Phase Alloys Suitable for Use in Transmission Electron Microscopy. Apr. 406
Teghtsoonian, E., and Davis, K. G.: *Growth of Cobalt Crystals for Deformation Studies.* Dec. 1263
Tellurium:
effect on surface tension of lead. Apr. 266
Temperature Dependence of the Yielding Behavior of SAP-Type Dispersion Strengthened Alloys. Aug.... 892
Testardi, L. R., and Wiese, J. R.: *Density Anomalies in the Bi_2Te_3-Sb_2Te_3 System.* June 647
Thermal Decomposition of Cobalt Sulfate. June 591
Thermal Diffusion of Hydrogen in Alpha-Delta Zircaloy-2. Aug. 819
Thermal Diffusivity of Armco Iron. Feb. 25
Thermal Expansion of Beta Titanium. Apr. 411
Thermal Expansion of Titanium and Some Ti-O Alloys. Dec. 1231
Thermochemical Model of the Blast Furnace. June 485
Thermodynamic Activities in the Fe-Mn-C System. June 479
Thermodynamic Considerations in the Chlorination of Different Oxides Constituting Columbite (Niobite) and Tantalite. Aug. 866
Thermodynamic Properties for the Zn-Cd System from Electromotive Force Measurement. Feb. 186
Thermodynamic Properties of Cr_3C_2 at High Temperatures. Apr. 275
Thermodynamic Study of Dilute Solutions of Sulfur in Liquid Tin and Lead. Apr..... 295
Thermodynamics and Kinetics of the Deoxidation of Thorium by Calcium. Oct..... 924
Thomas, D. A., and Peck, J. F.: *Study of Fibrous Tungsten and Iron.* Dec. 1240
Thomassen, L., *et al.: Phase Equilibria and Elevated-Temperature Properties of Some Alloys in the System Ni_3Cr-Ni_3Al.* Apr..... 400
Thorium:
deoxidation by calcium. Oct..... 924
phase diagram, Th-Zn system. June 573
Tiemann, T. D., and Hill, F. J.: *Hydrogen Reduction of a Low-Grade Siliceous Iron Ore.* Feb. 68
Tiller, W. A., and Harrison, J. D.: *Optimum Conditions for Zone Refining.* June 649
Tiller, W. A., and Johnston, W. C.: *Fluid Flow Control During Solidification. Part I: Magnetic Stirring in the Plane of the Solid-Liquid Interface.* Apr. 331
Timmons, G. A., *et al.: Molybdenum by Direct Thermal Dissociation of Molybdenum Disulfide.* Apr. 356
Tin:
solubility, solution of sulfur. Apr... 295
solution calorimetry, aluminum, gallium, thallium, indium. Aug. 683
Tiner, N. A.: *Study of Fracturing Behavior of Copper and Zinc Coated with Mercury.* Apr. 261
Titanium:
mercury embrittlement, RC-130-A. Apr. 408
notch sensitivity, alloys. Dec. 1235
solute atoms, fatigue behavior. Oct. 918
structure, Ti_3Al. June..... 639
thermal expansion. Dec. 1231
thermal expansion of beta. Apr. 411
Ti-Al system, phases. Feb. 151
Ti-Al-V system, Ti rich. Dec..... 1214

Ti-Cr system, reinvestigation. Oct. 904
Ti-Cu-Zr, structure Ti_2Cu. Apr. 320
Ti-Ni system between Ti_2Ni and TiNi. June 636
Ti-TiO-ZrO_2-Zr system. Dec. 1162
Ti-V system, reinvestigation. Oct... 904
transformation kinetics, base alloys. Feb. 74
Titanium Rich Region of the Titanium-Aluminum-Vanadium System. Dec. 1214
Toney, S., and Aaronson, H. I.: *Effects of Grain Boundary Structure on Precipitate Morphology in an Fe-1.55 Pct Si Alloy.* Oct. 909
Transformation Kinetics in High-Purity Iron and Some Iron Binary Alloys. June 498
Transmission electron microscopy:
thin films of two-phase alloys. Apr. 406
Trapping of Hydrogen in Cold-Worked Steel. Apr. 389
Tully, W. R., and Hibbard, W. R., Jr.: *Effect of Orientation on the Recrystallization Kinetics of Cold-Rolled Single Crystals.* Apr. 336
Tungsten:
microstructure, fibrous. Dec. 1240
orientations, large grains in wire. Oct. 1083
twinning, zone-refined. Aug. 741
Turkdogan, E. T.: *Activities of Oxides in CaO-FeO-Fe_2O_3 Melts.* Dec. 1090
Oxygen Potentials and Phase Equilibria in the Fe-Ca-O System. June 546
Turkdogan, E. T., and Darken, L. S.: *Sulfur Equilibria between Gases and Calcium Ferrite Melts.* June.. 464
Turnbull, David: *Liquid State and the Liquid-Solid Transition,* June 422

U

Underwood, E. E., *et al.: Strengthening of Iron-Base Alloys Containing Columbium.* Aug. 676
Uranium:
U_6Fe - diffraction powder data. Dec. 1273
Uranium Solubility in Bismuth-Base Liquid Solutions. Feb. 83
Use of Heat- and Mass-Transfer Model Studies in the Evaluation of the Rates of Deposition of Metals in Complex Systems. Feb. 9
Use of Vanadium Nitride Inclusions for the Development of Cube-on-Edge Texture in 3 Pct Fe. Dec..... 1201

V

Vacher, H. C., and Bechtoldt, C. J.: *Redetermination of the Chromium and Nickel Solvuses in the Chromium-Nickel System.* Feb. 14
Vanadium:
hydrogen effect, tensile properties. Apr. 238
nitride inclusions, cube-on-edge, 3 Pct Si-Fe. Dec. 1201
transition element additions on recrystallization. Dec. 1193
Van den Bergen, E., *et al.: Anomaly in the Rate of Strain Hardening of Zinc Single Crystals.* Feb. 204
Van der Planken, J., *et al.: Anomaly in the Rate of Strain Hardening of Zinc Single Crystals.* Feb. 204
Van Thyne, R. J., *et al.: Uranium Solubility in Bismuth-Base Liquid Solutions.* Feb. 83
Van Vlack, L. H., *et al.: Sulfide Inclusions in Steel.* Apr. 220
Vapor Pressure Studies on Iron and Chromium and Several Alloys of Iron, Chromium, and Aluminum. Dec. 1247
Vaughan, D. A., *et al.: Determination of Interstitial Solid-Solubility Limit in Tantalum and Identification of the Precipitate Phases.* Oct. .. 937
Veal, B. W., and Chandrasekhar, B. S.: *Crystallographic Angles in Tetragonal Crystals: β-Tin and Indium.* Feb. 202
Vickery, R. C., *et al.: Gadolinium-Cobalt System.* June 591
Gadolinium-Iron System. June ... 585
Gadolinium-Nickel System. June 588
Viscous Shear as an Agent for Grain Refinement in Cast Metal. Apr. .. 419
Volume-fraction analysis:
point-count method. Apr. 344
von Gemmingen, F., *et al.: Creep and Creep-Rupture Relationships in an Austenitic Stainless Steel.* Apr. 310

W

Wadsworth, M. E., *et al.: Kinetics of Reduction of Magnetite to Iron and Wustite in Hydrogen-Water Vapor Mixtures.* Dec. 1186
Wadsworth, M. E., and Wimber, R. T.: *Kinetics of the Platinum-Catalyzed Hydrogen of Aqueous Cobalt Sulfate-Ammonium Acetate Solutions.* Dec. 1141
Wagner, J. B., Jr., *et al.: Rates of Formation and Structure of Oxide Films Formed on a Single Crystal of Iron.* Apr. 257
Walter, J. L., and Dunn, C. G.: *On Secondary Recrystallization in High-Purity Alpha Iron.* Apr. 413
Walton, D., *et al.: Effect of Copper Additions on the Activation Energies for Creep of Aluminum Single Crystals.* June 458
Wang, D. Y., and Lipsitt, H. A.: *Effects of Interstitial Solute Atoms on the Fatigue Limit Behavior of Titanium.* Oct. 918
Ward, R. G., *et al.: Density of Liquid Iron Silicates.* Aug. 807
Warlimont, H.: *Increased Martensite Formation Temperature in Thin Films.* Dec. 1270
Warner, J. Stuart: *Thermal Decomposition of Cobalt Sulphate.* June 591
Warrick, R. J., *et al.: Sulfide Inclusions in Steel.* Apr. 220
Wasilewski, R. J.: *On the Existence of Lower Tantalum Oxides.* June.... 647
Thermal Expansion of Titanium and Some Ti-O Alloys. Dec. 1231
Waterstrat, R. M.: *Identification of Intermediate Phases in the Manganese-Titanium System.* Aug. 687
Weeton, J. W., *et al.: Strength and High-Temperature Stability of Dispersion Strengthened Nickel-MgO Alloys.* Dec..... 1099
Weinberg, A. F., *et al.: Uranium Solubility in Bismuth-Base Liquid Solutions.* Feb. 83
Weinberg, F.: *Solute Segregation During Dendritic Growth.* Aug. 844
Weinstein, D., *et al.: Strain Rate and Temperature Dependence of the Yield Point in Mo in Torsion.* Aug. 732
Weisberg, L. R.: *Effects on Impurity Content of Cropping Directionally Frozen Ingots.* Dec. 1271
Weisberg, L. R., and Celmer, P. R.: *Dependence of Segregation of Impurities on the Crystallinity of Gallium.* Aug..... 889
Wert, C., *et al.: Strain Rate and Temperature Dependence of the Yield Point in Mo in Torsion.* Aug. 732
Westbrook, J. H., and Hagel, W. C.: *Silver Diffusion in the Intermetallic Compound AgMg.* Oct..... 951
Westermann, F. E., and Carlson, R. G.: *Hot Pressing of Lead Spheres.* June 649
Whitmore, R. W., *et al.: Creep and Creep-Rupture Relationships in an Austenitic Stainless Steel.* Apr.. 310
Wiese, J. R., and Testardi, L. R.: *Density Anomalies in the Bi_2Te_3-Sb_2Te_3 System.* June 647
Wilhelem, A. J., and St. Pierre, G. R.: *Kinetics of the Iron Oxide Reduction Steps.* Dec. 1267
Williams, D. N.: *Role of Stress in Hydrogen Induced Delayed Failure.* Discussion. Aug. 877
Thermal Expansion of Beta Titanium. Apr. 411
Wilshire, B., and Davies, P. W.: *Effect of Grain Boundary Migration on Creep Ductility.* Dec. 1265
Wimber, R. T., and Wadsworth, M. E.: *Kinetics of the Platinum-Catalyzed Hydrogen Reduction of Aqueous Cobalt Sulfate-Ammonium Acetate Solutions.* Dec. 1141
Wittenberg, L. J., and Serpan, C. Z., Jr.: *Density of Liquid Plutonium Metal.* Oct. 1017
Wolosin, S. M., *et al.: The System Titanium-Zirconium-Oxygen.* Dec. .. 1162
Wriedt, H. A.: *Calculation of Activities in Binary Systems Having Miscibility Gaps.* Apr. 377
Wriedt, H. A., and Gonzalez, O. D.: *Solubility of Nitrogen in Solid Iron-Nickel Alloys Near 1000°C.* June 532
Wulff, J.: *Liquid-Solid Phase Distribution Studies in the Systems Iron-Lead, Chromium-Tin, and Nickel-Silver.* Apr..... 271
Solution Rate of Copper, Nickel, and Their Alloys in Lead. Apr. .. 279
Wulff, J., *et al.: Sintering and Strength of Coated and Co-Reduced Nickel Tungsten Powder.* Dec. 1225
The Ta-W-Re System. Dec. 1137
Wynnemer, D. J., and Preckshot, G. W.: *Thermodynamic Properties for the Zn-Cd System from Electromotive Force Measurement.* Feb. 186

X

X-ray:
determining orientation, thick samples. Aug. 704
diffraction, Co-5 pct Ti. Aug. 747
X-Ray Diffraction Powder Data of U_6Fe. Dec. 1273

Y

Yang, Ling, *et al.: Self-Diffusion of Aluminum in CaO-SiO_2-Al_2O_3 Melts.* Feb. 56
Yang, Ling, and Henderson, J.: *Self-Diffusion of Copper in Molten Copper.* Feb..... 72
Yans, F. M., *et al.: Effect of Copper, Nickel, Iron, and Chromium on the Tensile Properties of Preferentially Oriented Beryllium Sheet.* Apr. 364
Yield Point and Easy Glide in Silver Single Crystals. Apr. 305
Discussion. Aug..... 885
Yield Points in Alpha Cu-Al Single Crystals. Dec. 1178
Yocom, G. M.: *Acid Bessemer Oxygen-Steam Process.* June..... 536
Yttrium:
magnesium-yttrium phase diagram. Feb. 207
powdering of hydrite. June..... 646
Yue, A. S., and Clark, J. B.: *Determination of the Eutectic Composition by the Zone-Melting Method.* Apr. 383

Z

Zeman, R., *et al.: Hardness Anistropy in Single Crystal and Polycrystalline Magnesium.* June 554

Zinc:
- effect of striation, zone-refined crystals. Aug. 715
- fracturing behavior, mercury-coated. Apr. 261
- phase equilibria, Zn-Fe-Al. Aug. .. 779
- structural transformations, Ag-50 At. Pct Sn alloy. Oct. 1063
- Zn-Cd system, electromotive force. Feb. 191

Zinc-Rich Corner of the Zn-Fe-Al System. Aug. 775

Zircaloy-2:
- diffusion of hydrogen. Aug. 819
- dilatometric investigation. June 567
- effect of heat treatment. Dec. 1129

Zirconium:
- transition elements on recrystallization. Dec. 1199
- Zr-Co-O system. Oct. 1014
- Zr-Ni-O system. Oct. 1014
- Zr-Pt system. June 445

Zirconium-Platinum Alloy System. June 445

Zirconium-Rich Corners of the Ternary Systems Zr-Co-O and Zr-Ni-O. Oct. 1014

Zone Purification of Beryllium. Aug... 824

Zone refining:
- optimum conditions. June 649

Zukas, E. G., and McQueen, R. G.: *Shock Loading to Produce Fine Grain Structure.* Apr. 412

Zwilsky, K. M., and Grant, N. J.: *Dispersion Strengthening in the Copper Alumina System.* Apr..... 371